GROUNDWATER RESOURCES CONSULTANTS, INC.

TUCSON, ARIZONA

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PHASE II REPORT

INVESTIGATION OF SOIL AND SHALLOW GROUNDWATER CONDITIONS

SANTA SUSANA FIELD LABORATORY - AREA IV

ROCKWELL INTERNATIONAL CORPORATION - ROCKETDYNE DIVISION

CHATSWORTH, CALIFORNIA

May 17, 1989
8640M-45

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May 17, 1989

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RE: Submittal of Report Entitled:
PHASE II REPORT - INVESTIGATION OF SOIL AND SHALLOW GROUNDWATER CONDITIONS, SANTA SUSANA FIELD LABORATORY - AREA IV, ROCKWELL INTERNATIONAL CORPORATION - ROCKETDYNE DIVISION CHATSWORTH, CALIFORNIA

Dear Mr. Ueshiro:

Submitted herewith is our report concerning the assessment of soil and shallow groundwater conditions in Area IV of the Santa Susana Field Laboratory. Seven sites in Area IV were evaluated including the RMDF Leachfield, the Old and New Conservation Yards, B-133 Sodium Burn Facility, Southwest Drum Storage Area, ESADA Chemical Storage Yard and Trench in the B-100 Area.

Before we perform the recommendations described in this report, we will review pertinent data that has been generated since the recommendations were made in November, 1988. The recommended activities can then be modified as needed.

If you have any questions or wish further discussion of this report please contact us.

Respectfully submitted,

GROUNDWATER RESOURCES CONSULTANTS, INC.

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Senior Hydrologist

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Attachment

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ROCKWELL INTERNATIONAL CORPORATION - ROCKETDYNE DIVISION
CHATSWORTH, CALIFORNIA

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GROUNDWATER RESOURCES CONSULTANTS, INC.

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SANTA SUSANA FIELD LABORATORY - AREA IV

ROCKWELL INTERNATIONAL CORPORATION - ROCKETDYNE DIVISION
CHATSWORTH, CALIFORNIA

INTRODUCTION

Pursuant to the request of the Environmental Group, Rocketdyne Division, Rockwell International Corporation, this report presenting the results of the Santa Susana Field Laboratory (SSFL) Area IV Phase II Soil and Shallow Groundwater Investigation has been prepared. This report includes a discussion of geologic conditions, shallow groundwater conditions, and soil sampling methods and results for seven Area IV sites (**Figure 1**). Recommendations are presented for the Phase III assessment of deeper groundwater conditions occurring in the Chatsworth Formation in Area IV.

The seven Area IV sites included in the Phase II investigation are as follows:

1) B-021/022 RMDF Leachfield;
2) Old Conservation Yard;
3) New Conservation Yard;
4) Area of B-133 Sodium Burn Facility;
5) Southeast Drum Storage Area;
6) ESADA Chemical Storage Yard; and,
7) Trench in the B-100 Area.

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The seven Area IV sites were identified by the Department of Energy (DOE) in May, 1988 as part of 10 suspected or known sites which may be sources of soil and/or groundwater contamination (DOE, 1988). Three of the 10 sites were not sampled during the Phase I investigation: the B-886 Former Sodium Burn Pit, the B-056 Landfill, and the Building 059 Area (**Figure 1**).

The B-886 Former Sodium Burn Pit and the B-056 Landfill were included in a CERCLA Phase II Site Characterization study which was conducted in 1987. Soil samples were collected from these locations in March of 1987. Soil sample results are presented in the CERCLA Phase II summary report (ETEC, 1987).

In addition to the B-886 Former Sodium Burn Pit and the B-056 landfill, soil sampling was not conducted in the Building 059 Area (site of former SNAP Reactor Facility). The near-surface soils at this site would not be expected to be contaminated.

The near-surface geology at the seven sites investigated was characterized by shallow alluvium ranging from less than one foot to 13 feet thick, overlying fractured sandstone of the Chatsworth Formation. Soil samples were collected at the surface and at depth in trenches and augered borings. Soil sample collection methods are presented in **Appendix A.** A summary of soil samples collected is presented in

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Appendix B. Lithologic logs for soil borings, trench excavations, and surficial soil samples are presented in **Appendix C.**

There are two groundwater system in Area IV: 1) a shallow groundwater system in the surficial alluvium and the underlying zones of weathered sandstone and siltstone, and isolated shallow fracture systems, and 2) a deeper groundwater system in the fractured Chatsworth Formation. No shallow groundwater was encountered at or above the alluvium/bedrock interface during the investigation. However, four shallow monitor wells were constructed where depth to bedrock permitted. These wells were installed to assess the presence and quality of shallow groundwater potentially occurring at or above the alluvial/bedrock interface. These wells were dry when installed in August 1988, and have remained dry through October 1988.

Soil samples collected from all seven source areas were analyzed for Volatile Organic Compounds (VOCs), Base/Neutral and Acid Organic Compounds (B/NAs) and pH. Samples were analyzed for hydrocarbons, sodium, potassium and gross alpha and gross beta radiation at sites where these contaminants were suspected to occur.

Samples collected from sites where soils were suspected to be contaminated by radiation were analyzed by Thermoanalytical, Inc. (TMA/NORCAL). All other sample analyses were performed by Analytical Technologies, Inc. (ATI). Results of laboratory analyses of soil

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samples are presented in **Appendices D, E, F, and G.** A summary of organic compounds detected in soil samples is presented in **Table 2.**

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B-021/022 RMDF LEACHFIELD

SITE DESCRIPTION

The B-021/022 RMDF Leachfield (RMDF Leachfield) is located in the north-central portion of Area IV (**Figures 1 and 2**). The RMDF was operated as a storage and handling facility for reactor fuel and other radioactive materials. The RMDF Leachfield was constructed in 1959. It was designed to accept sanitary wastes from Building 021 (B-021). A secondary function of the Leachfield was to accept non-radioactive water from the radioactive water processing system at the west side of B-021. In 1961, a central sanitary sewer system was constructed at the SSFL and the use of the RMDF Leachfield was discontinued (ESG, 1982).

Following closure, radioactive materials entered the RMDF Leachfield on two occasions. In the fall of 1962 or spring of 1963, leakage occurred from the RMDF radioactive water processing system to the Leachfield (ESG, 1978). In July 1976, radioactive contamination was discovered at the Leachfield (ESG, 1978).

In 1978, clean-up of the RMDF Leachfield was undertaken. As part of the site cleanup, the Leachfield was reportedly excavated to bedrock. Approximately 36,000 ft^3 of contaminated soil was removed and packaged for shipment to an off-site land disposal facility (ESG, 1978). Bedrock cracks, in which radioactive contamination was

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detected, were found to branch and meander at depths of at least ten feet below the bedrock surface. The bedrock cracks were reportedly sealed with tar. The excavated portion of the Leachfield was back-filled with soil to a level several feet below the original grade.

The RMDF Leachfield is underlain by outcropping Chatsworth Formation. The results of soil sampling conducted in this area indicate that the bedrock is thinly covered by as much as one foot of silty sandy alluvium and weathered Chatsworth Formation (**Appendix C**).

The extreme shallowness of the bedrock and the rugged terrain of the RMDF Leachfield area prevented the construction of a shallow monitor well at this site. Based on these conditions, the occurrence of perched groundwater above the fill/Chatsworth Formation interface seems unlikely.

SOIL SAMPLING RESULTS

Soil samples were obtained from six locations at the RMDF Leach-field (**Figure 2**). Six samples were collected from surface soils at a depth interval of 0 to 0.5 feet (**Appendix B**). Soil sample collection methods are presented in **Appendix A**. Lithologic descriptions of soil samples collected at the Leachfield are presented in **Appendix C**.

Soil samples were analyzed for VOCs, B/NAs, pH, sodium, potassium and gross alpha and gross beta radiation, using analytical methods

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listed in **Table 1.** Results of laboratory analyses of soil samples are presented in **Appendices D, E, F, and G.** A summary of organic compounds detected in soil samples is presented in **Table 2.**

The VOCs toluene, methylene chloride, 2-butanone, total xylenes and ethylbenzene were detected in soil samples collected from the RMDF Leachfield at concentrations of less than 0.052 milligrams per kilogram (mg/kg). Sample RMDF-5 had reported concentrations of the Base/ Neutral compounds bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, di-n-butyl phthalate and di-n-octyl phthalate of 0.270 mg/kg, 0.130 mg/kg, 0.060 mg/kg and 0.060 mg/kg, respectively (**Table 2**). Sample RMDF-6 had a reported concentration of the Base/Neutral compound di-n-butyl phthalate of 0.040 mg/kg. Soil sample pH ranged from 6.3 to 7.0 (**Appendix G**).

Concentrations of gross alpha radioactivity in samples collected from the RMDF Leachfield ranged from 15.0 $\pm$ 7.5 pCi/g to 41.6 $\pm$ 6.5 pCi/g. The average background concentration for gross alpha radioactivity has reportedly been approximately 25 $\pm$ 7 pCi/g in soil samples collected previously both on and off-site of the SSFL (Rocketdyne, 1987). Gross alpha concentrations do not appear to be elevated in soil samples collected at the RMDF Leachfield. Gross beta concentrations in soil samples collected from the RMDF Leachfield were reported as ranging from 59.0 $\pm$ 6.3 pCi/g to 4,970 $\pm$ 176.9 pCi/g. The average background concentration for gross beta radioactivity in soil samples collected previously at the SSFL has been approximately 25 $\pm$ 2

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pCi/g (Rocketdyne, 1987). Gross beta concentrations appear to be considerably higher than background concentrations in all soil samples collected at the RMDF Leachfield (**Appendix G**).

Sodium concentrations ranged from 73 mg/kg to 87 mg/kg and potassium concentrations ranged from 3,000 mg/kg to 4,300 mg/kg in soil samples collected from the RMDF Leachfield site. Sodium and potassium are metals which occur naturally in most soils at relatively high concentrations commonly exceeding several thousand mg/kg (Mason, 1966). The sodium and potassium concentrations reported for soil samples collected at the RMDF Leachfield do not appear to be elevated in comparison to other soil samples collected at the SSFL (**Appendix G**).

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OLD CONSERVATION YARD

SITE DESCRIPTION

The Old Conservation Yard is located in the northeast portion of Area IV (**Figures 1 and 3**). The DOE has reported that hundreds of drums were stored in this area during the 1960's and 1970's (DOE, 1988). No information has been made available on the contents of the drums. The Old Conservation Yard covers an area of approximately 300 feet by 400 feet.

Three sampling trenches were excavated to bedrock at the Old Conservation Yard to characterize shallow geologic conditions and to facilitate collection of soil samples (**Figure 3**). In this area, the Chatsworth Formation is overlain by 2 to 5 feet of alluvium. The alluvium is comprised of dry, sandy silt (**Appendix C**).

A Shallow Zone monitor well was constructed in Trench #3. Details concerning the construction of the shallow well are presented in **Appendix H.** The well was dry in August 1988 at the time of construction, and has remained dry through late October 1988.

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SOIL SAMPLING RESULTS

Sampling trenches were excavated by a backhoe. Three soil samples were collected from trenches, and three samples were collected from the land surface (**Appendices A and C**). A lithologic description of soil samples is presented in **Appendix C.** The soil sampling locations are shown on **Figure 3.** Soil sample collection methods are presented in **Appendix A.**

Soil samples collected from the Old Conservation Yard were analyzed for VOCs, B/NAs, pH, sodium, potassium, gross alpha and gross beta radiation and hydrocarbons. A summary of sampled depth intervals and analytical methods performed is presented in **Appendix B.** Results of laboratory analyses of soil samples are presented in **Appendices D, E, F and G.** A summary of organic compounds detected in soil samples is presented in **Table 2.**

The VOCs toluene, acetone, 2-butanone, total xylenes and methylene chloride were reported in some of the samples collected from the Old Conservation Yard at concentrations of less than 0.015 mg/kg. Sample OLDCONS-1 had reported concentrations of the Base/Neutral compounds chrysene, fluoranthene, phenanthrene and pyrene at concentrations of 0.5 mg/kg, 2.1 mg/kg, 1.6 mg/kg and 1.0 mg/kg, respectively (**Table 2**). Hydrocarbons in the C_9-C_{22} range were detected in four samples at concentrations ranging from 0.3 mg/kg to 64 mg/kg. Hydrocarbons in the C_{22} + range were detected in samples OLDCONS-3 and OLDCONS-6 at concen-

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trations of 4,000 mg/kg and 5 mg/kg, respectively. Soil sample pH ranged from 5.4 to 9.0.

Concentrations of gross alpha radioactivity in soil samples collected from the Old Conservation Yard ranged from 7.3 ± 9.6 pCi/g to 29.6 ± 6.3 pCi/g. Gross beta concentrations ranged from 22.5 ± 6.4 pCi/g to 45.0 ± 7.0 pCi/g (**Appendix G**). Average background concentrations for gross alpha and gross beta concentrations in soil samples collected previously have been approximately 25 ± 7 pCi/g and 25 ± 2 pCi/g (Rocketdyne, 1987). The range of gross alpha and gross beta concentrations detected in recent soil samples collected at the Old Conservation Yard do not appear to be elevated in comparison to background concentrations.

Sodium concentrations ranged from 130 mg/kg to 250 mg/kg and potassium concentrations ranged from 2,800 mg/kg to 5,000 mg/kg in soil samples collected from the Old Conservation yard (**Appendix G**). Sodium and potassium are metals which occur naturally in most soils at relatively high concentrations, commonly exceeding several thousand mg/kg (Mason, 1966). The sodium and potassium concentrations reported for soil samples collected at the Old Conservation Yard do not appear to be elevated in comparison to other soil samples collected at the SSFL (**Appendix G**).

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NEW CONSERVATION YARD

SITE DESCRIPTION

The New Conservation Yard is located in the eastern portion of Area IV (**Figures 1 and 4**). The DOE has reported that this site was used for storage of equipment and drums since the early 1970's (DOE, 1988). The site is approximately 100 feet by 200 feet in area.

Three soil borings were constructed at the New Conservation Yard to characterize shallow geologic conditions and to facilitate collection of soil samples. The results of soil borings indicate that in this area, the Chatsworth Formation is overlain by three to five feet of alluvium. The alluvium is comprised of sandy silt. Soil boring lithologic logs are presented in **Appendix C.**

There was no indication of shallow groundwater at this site when the soil borings were constructed. Due to the shallowness of the bedrock, no shallow monitor wells were constructed.

SOIL SAMPLING RESULTS

Two soil samples were collected from each of the three soil borings. Samples were collected at depths ranging from one to five

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feet (**Appendix B**). Soil sample collection methods are presented in **Appendix A.**

Soil samples were analyzed for VOCs, B/NAs, pH, and hydrocarbons using analytical methods summarized in **Table 1.** Results of laboratory analyses of soil samples are presented in **Appendices D, E, F, and G.** A summary of organic compounds detected in soil samples is presented in **Table 2.**

The VOC toluene was reported in one sample at a concentration of 0.011 mg/kg. No B/NAs were reported in samples collected from this site. A cyclic hydrocarbon was reported in one sample at a concentration of 0.2 mg/kg. A branched alkane was reported in another sample at a concentration of 0.7 mg/kg. Soil pH was reported as ranging from 5.84 to 7.35 (**Appendix G**).

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AREA OF B-133 SODIUM BURN FACILITY

SITE DESCRIPTION

The B-133 Sodium Burn Facility (B-133) is located in the northeast portion of Area IV (**Figures 1 and 5**). The DOE has reported that equipment was stored at this site during the 1960's and 1970's (DOE, 1988). According to the DOE, soil samples collected from this site exhibited pH values of 10 to 11. The site is approximately 100 feet by 100 feet in area.

A sampling trench was excavated at B-133 to characterize shallow geologic conditions and to facilitate collection of soil samples (**Figure 5**). In the vicinity of B-133, the Chatsworth Formation is overlain by approximately 13 feet of alluvium/fill. The alluvium/fill is comprised of silty clay with sand (**Appendix C**).

A Shallow Zone monitor well was constructed in the B-133 sampling trench. Details concerning the construction of this well are presented in **Appendix H.** The well was dry in August 1988 at the time of construction, and has remained dry through late October 1988.

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SOIL SAMPLING RESULTS

Six soil samples were collected from the area of the B-133 Sodium Burn Facility. Three samples were collected from the sampling trench. Two samples were collected from the existing drain-pipe trench inside the B-133 enclosure, and one additional sample was collected from a soil pile resulting from the tank excavation in the B-133 enclosure (**Figure 5**). Samples were collected at depths ranging from 1.2 to 9 feet. Soil sample collection methods are presented in **Appendix A.**

Soil samples were analyzed for VOCs, B/NAs, pH, sodium, potassium, gross alpha and gross beta radiation and hydrocarbons, using analytical methods listed in **Table 1.** Results of laboratory analyses of soil samples are presented in **Appendices D, E, F, and G.** A summary of organic compounds detected in soil samples is presented in **Table 2.**

The VOCs acetone, 2-butanone and total xylenes were reported in four samples collected from the B-133 vicinity at concentrations ranging from 0.011 mg/kg to 0.099 mg/kg (**Table 2**). The Base/Neutral compound di-n-butyl-phthalate was reported in sample B-133-6 at a concentration of 0.040 mg/kg. Hydrocarbons in the C_9-C_{22} range were reported in all six soil samples at concentrations ranging from 0.2 mg/kg to 0.9 mg/kg. Soil pH was reported as ranging from 7.5 to 11.8 (**Appendix G**).

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Concentrations of gross alpha radioactivity in samples collected from B-133 ranged from 7.4 ± 5.8 pCi/g to 36.8 ± 8.5 pCi/g. Gross beta was reported as ranging from 38.6 ± 7.4 pCi/g to 51.6 ± 8.0 pCi/g (**Appendix G**). Average background concentrations for gross alpha and gross beta radioactivity in soil samples collected previously at the SSFL have been approximately 25 ± 7 pCi/g and 25 ± 2 pCi/g, respectively (Rocketdyne, 1987). The range of gross alpha concentrations detected in soil samples collected at the B-133 site do not appear to be elevated in comparison to reported background concentrations. The range of gross beta concentrations in soil samples collected at the B-133 site appear to be slightly elevated in comparison to reported background concentrations (**Appendix G**).

Sodium concentrations ranged from 110 mg/kg to 6,900 mg/kg and potassium concentrations ranged from 2,700 mg/kg to 11,000 mg/kg in soil samples collected at the B-133 site. In comparison to sodium and potassium concentrations found in soil samples collected in other areas at the SSFL, concentrations in soil samples collected at the B-133 site appear to be elevated. Sodium concentrations in soil samples B-133-1, B-133-2, B-133-4, and B-133-5, were an order of magnitude greater than sodium concentrations detected in soil samples collected at other sites in Area IV (**Appendix G**). The potassium concentration detected in soil sample B-133-1 was also an order of magnitude greater than potassium concentrations detected in soil samples collected at other sites in Area IV (**Appendix G**).

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SOUTHEAST DRUM STORAGE AREA

SITE DESCRIPTION

The Southeast Drum Storage Area is located in the southeastern portion of Area IV (**Figures 1 and 6**). According to the DOE, 50 to 100 drums were stored in this area in the early 1960's (DOE, 1988). No information has been made available on the contents of the drums. The site is approximately 100 feet by 150 feet in area.

Three soil borings were constructed at this site to characterize shallow geologic conditions and to facilitate collection of soil samples (**Figure 6**). Soil borings indicate that the Chatsworth Formation is overlain by approximately five feet of alluvium. The alluvium is comprised of silty clay. Lithologic logs of soil borings are presented in **Appendix C.**

A Shallow Zone monitor well was constructed in one of the soil borings, designated SEDRUM-3 (**Figure 6**). Details concerning the construction of the well are presented in **Appendix H.** The well was dry in August 1988, at the time of construction, and has remained dry through October 1988.

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SOIL SAMPLING RESULTS

Two soil samples were collected from each of the three soil borings at depths ranging from one to four feet (**Appendix B**). Soil boring locations are shown on **Figure 6.** Soil sample collection methods are presented in **Appendix A.**

Soil samples were analyzed for VOCs, B/NAs, pH, and hydrocarbons, using analytical methods presented in **Table 1.** Results of laboratory analyses of soil samples are presented in **Appendices D, E, F, and G.**

No VOCs, B/NAs or hydrocarbons were reported in soil samples collected from the Southeast Drum Storage Area. Soil pH was reported as ranging from 6.53 to 6.90 (**Appendix G**).

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ESADA CHEMICAL STORAGE YARD

SITE DESCRIPTION

The ESADA Chemical Storage Yard (ESADA) is located in the western portion of Area IV (**Figures 1 and 7**). The site is approximately 100 feet by 150 feet in area. The DOE has reported that 50 to 100 drums were stored in this area in the 1970's (DOE, 1988). Some of the drums reportedly contained isopropyl alcohol, however, no information has been made available on the contents of other drums.

Three soil borings were constructed at ESADA to characterize shallow geologic conditions and to facilitate collection of soil samples (**Figure 7**). Lithologic logs of soil borings are presented in **Appendix C.** Lithologic logs of the soil borings indicate that the Chatsworth Formation is overlain by as much as 10 feet of alluvium in the ESADA area. The alluvium is comprised of silty clay (**Appendix C**).

A Shallow Zone monitor well was constructed in one of the soil borings, designated ESADA-1 (**Figure 7**). Details concerning the construction of the well are presented in **Appendix H, Figure H-4.** The well was dry in August 1988 at the time of construction, and has remained dry through October 1988.

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SOIL SAMPLING

Two soil samples were collected from each of the three soil borings at depths ranging from one to five feet (**Appendix B**). Soil sample collection methods are presented in **Appendix A.**

Soil samples were analyzed for VOCs, B/NAs, pH, sodium, potassium and hydrocarbons, using analytical methods presented in **Table 1.** Results of laboratory analyses of soil samples are presented in **Appendices D, E, F, and G.**

No VOCs or B/NAs were reported in samples collected from this site. A C_6 branched hydrocarbon was reported in one sample at a concentration of 0.9 mg/kg. Soil pH was reported as ranging from 8.01 to 8.37. Sodium concentrations ranged from 452 mg/kg to 732 mg/kg. Potassium concentrations ranged 1,670 mg/kg to 2,550 mg/kg (**Appendix G**).

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TRENCH IN THE B-100 AREA

SITE DESCRIPTION

The trench in the B-100 area (B-100 Trench) is located in the west central portion of Area IV (**Figures 1 and 8**). DOE reports that the trench was used from the early 1960's through 1966 for burning and disposal of construction debris and possibly hazardous substances (DOE, 1988). The site was paved over during the construction of 24th Street.

Two sampling trenches were excavated at the B-100 Trench to characterize shallow geologic conditions and to facilitate collection of soil samples (**Figure 8**). During the excavation, approximately five feet of alluvium/fill and construction debris was found to overlie the Chatsworth Formation. The alluvium/fill is comprised of sandy silt (**Appendix C**).

There was no indication of shallow groundwater when the sampling trenches were excavated. The shallowness of the bedrock precluded the installation of Shallow Zone monitor wells.

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SOIL SAMPLING RESULTS

A backhoe was used to excavate the two sampling trenches placed to intersect the old B-100 trench. Two soil samples were collected from each trench at depths ranging from two to four feet (**Appendix B**). The sample locations are shown on **Figure 8.** Soil sample collection methods are presented in **Appendix A.**

Soil samples were analyzed for VOCs, B/NAs, pH, and hydrocarbons using analytical methods presented in **Table 1.** Results of laboratory analyses for soil samples are presented in **Appendices D, E, F, and G.**

No VOCs or B/NAs were reported in soil samples collected from this site. A variety of hydrocarbons were reported in three samples from the B-100 trench at concentrations ranging from 0.2 mg/kg to 3 mg/kg (**Table 2**). Hydrocarbons in the C_{22}-C_{30} range were reported at a concentration of 300 mg/kg in sample B-100-3. Hydrocarbons in the C_{19}-C_{30} range were reported at a concentration of 400 mg/kg in sample B-100-4. Soil pH was reported as ranging from 7.57 to 8.21 (**Appendix G**).

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SUMMARY OF RESULTS

Soil and shallow groundwater conditions were evaluated at the following Area IV sites during the Phase II investigation:

RMDF Leachfield	Old Conservation Yard
New Conservation Yard	B-133 Sodium Burn Facility
Southeast Drum Storage Area	ESADA Chemical Storage Yard
Trench in the B-100 Area	

Based on laboratory analyses of soil samples, geologic interpretation of soil samples, and monitoring of shallow wells, the following summary of results of the Phase II investigation has been compiled:

1) The sites investigated in Area IV are, in general, underlain by a thin veneer of alluvium which overlies the Chatsworth Formation. The alluvium ranges in thickness from less than one foot to about 13 feet.

2) Soil samples were collected from the land surface to the top of the Chatsworth Formation at each of the sites investigated.

3) At the sites investigated, no shallow groundwater was encountered above the Chatsworth Formation. Monitor wells were completed to the top of the Chatsworth Formation at four of the seven sites investigated in order to evaluate the potential presence of shallow groundwater following the seasonal high precipitation period which normally occurs from January through March.

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4) Soil samples were analyzed for volatile organic compounds, base/neutral and acid organic compounds, hydrocarbons, sodium, potassium, pH, gross alpha and gross beta radiation.

5) Organic compounds were detected in soil samples collected from six of the seven Area IV sites investigated. However, concentrations of these compounds were less than 1 mg/kg except at the Old Conservation yard and Trench in the Building 100 area. Hydrocarbons, in the C_{22} plus range, were detected in soil samples collected from the Old Conservation Yard at 4,000 mg/kg. Hydrocarbons in the C_{19} - C_{30} range were detected in the B-100 Trench area at maximum concentrations of 400 mg/kg.

6) Laboratory analyses for gross alpha and gross beta radiation were performed on soil samples collected at the RMDF Leachfield, Old Conservation Yard, and B-133 Sodium Burn Facility. Concentrations of gross beta were elevated in comparison to reported background concentrations in soil samples collected at the RMDF Leachfield and B-133 Sodium Burn Facility.

7) Laboratory analyses for sodium and potassium were performed on soil samples collected from the RMDF Leachfield, Old Conservation yard, B-133 Sodium Burn Pit, and the ESADA Chemical Storage Area. Elevated concentrations of sodium and potassium appear to only occur in soils at the B-133 Sodium Burn Facility.

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8) Laboratory analyses for pH were performed on all soil samples recently collected in Area IV. Soil pH values generally ranged from about 6.5 to 8.5. Elevated soil pH values were detected at the B-133 Sodium Burn Facility.

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PHASE III RECOMMENDATIONS

AREA IV GROUNDWATER INVESTIGATION

Phase III of the Area IV investigation would consist of the construction of additional shallow monitor wells and deeper Chatsworth Formation monitor wells, collection and analyses of two rounds of groundwater samples from new wells, and preparation of a report summarizing hydrogeologic, water quality, and soil data obtained during the Area IV investigation.

Two additional shallow wells are recommended for construction (**Figure 1**). These two wells will be constructed to the top of the unweathered Chatsworth Formation, at depths of 10 to 15 feet or less. The additional shallow wells will be used to determine whether or not groundwater occurs at or above the alluvial/bedrock interface.

Sixteen deeper Chatsworth Formation wells are also proposed (**Figure 1**). These wells will range in depth from about 50 to 150 feet. The upper 20 to 30 feet of each proposed Chatsworth Formation well will be sealed with neat cement and bentonite. The Chatsworth Formation wells will be used to define groundwater quality conditions and direction of groundwater movement beneath Area IV.

It is recommended that groundwater samples collected from the proposed wells be analyzed for the presence of VOCs, B/NAs, pH, common

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ions, trace metals, and hydrocarbons (C_1-C_{30} range). Groundwater samples collected from wells in the vicinity of the B-886 Former Sodium Burn Pit, Building 059, and RMDF Leachfield would also be analyzed for gross alpha and gross beta activity.

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE 1

ANALYTICAL METHODS

CHEMICAL PARAMETER	ANALYTICAL METHOD[1/]
VOLATILE ORGANIC COMPOUNDS	8240
BASE/NEUTRAL AND ACID ORGANIC COMPOUNDS	8270
HYDROCARBONS	8015
SODIUM	6010/7770
POTASSIUM	6010/7610
pH	9045
GROSS ALPHA RADIATION	MODIFIED 900.0[2/]
GROSS BETA RADIATION	MODIFIED 900.0[2/]

NOTE:

1/ Method performed in accordance with SW-846, 3rd edition, unless otherwise indicated.

2/ Method modified for soils from drinking water procedure, EPA-600/4-80-032, August, 1980.

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE 2

SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES

SAMPLE IDENTIFIER	SAMPLED[1/] DEPTH INTERVAL (feet)	DATE SAMPLED	ORGANIC COMPOUND	CONCENTRATION OF CONTAMINATS DETECTED (mg/kg)
RMDF LEACHFIELD				
RMDF-1	0.0 - 0.5	08/25/88	Methylene Chloride	0.007
			Toluene	0.034
			Total Xylenes	0.018
RMDF-2	0.0 - 0.5	08/25/88	Toluene	0.025
			Total Xylenes	0.016
			2-Butanone	0.013
RMDF-3	0.0 - 0.5	08/25/88	Ethylbenzene	0.005
			Toluene	0.051
			Total Xylenes	0.026
RMDF-4	0.0 - 0.5	08/25/88	Ethylbenzene	0.008
			Toluene	0.028
			Total Xylenes	0.039
RMDF-5	0.0 - 0.5	08/25/88	Ethylbenzene	0.005
			Toluene	0.030
			Total Xylenes	0.022
			Bis(2-ethylhexyl) phthalate	0.270
			Butyl Benzyl Phthalate	0.130
			Di-n-Butyl Phthalate	0.060
			Di-n-Octyl Phthalate	0.060
RMDF-6	0.0 - 0.5	08/25/88	Ethylbenzene	0.005
			Toluene	0.031
			Total Xylenes	0.026
			Di-n-Butyl Phthalate	0.040
OLD CONSERVATION YARD				
OLDCONS 1	0.0 - 0.5	08/25/88	Chrysene	0.5
			Fluoranthene	2.1
			Phenanthrene	1.6
			Pyrene	1.0
			Hydrocarbons (C_9-C_{22})	64
OLDCONS 2	0.5 - 1.0	08/25/88	Toluene	0.007
			Total Xylenes	0.013
			Hydrocarbons (C_9-C_{22})	4

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TABLE 2
(continued)
SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES

SAMPLE IDENTIFIER	SAMPLED[1] DEPTH INTERVAL (feet)	DATE SAMPLED	ORGANIC COMPOUND	CONCENTRATION OF CONTAMINATS DETECTED (mg/kg)
OLD CONSERVATION YARD (continued)				
OLDCONS 3	3.0 - 3.5	08/25/88	Methylene Chloride	0.006
			Acetone	0.014
			Total Xylenes	0.006
			Hydrocarbons (C_{22}+)	4,000
OLDCONS 4	0.0 - 0.5	08/25/88	2-Butanone	0.011
			Hydrocarbons (C_9-C_{22})	2
OLDCONS 5	0.0 - 0.5	08/25/88	Toluene	0.014
			Total Xylenes	0.01
			Hydrocarbons (C_9-C_{22})	0.3
OLDCONS 6	0.0 - 0.5	08/25/88	Hydrocarbons (C_{22}+)	5
NEW CONSERVATION YARD				
NEWCONS-1	1.5 - 2.0	08/24/88	Cyclic Hydrocarbon C_{16}	0.2
NEWCONS-3	1.0 - 1.5	08/24/88	Branched Alkane C_{22}	0.7
			Toluene	0.11
B-133-1 SODIUM BURN FACILITY				
B-133-1	@ 2.0	08/25/88	2-Butanone	0.011
			Hydrocarbons (C_9-C_{22})	0.8
B-133-2	1.2 - 1.7	08/25/88	Acetone	0.013
			2-Butanone	0.099
			Hydrocarbons (C_9-C_{22})	0.9
B-133-3	0.3 - 0.8	08/25/88	Acetone	0.018
			Hydrocarbons (C_9-C_{22})	0.7
B-133-4	2.5 - 3.0	08/25/88	Hydrocarbons (C_9-C_{22})	0.2
B-133-5	@ 9.0	08/25/88	Total Xylenes	0.011
			Hydrocarbons (C_9-C_{22})	0.7
B-133-6[2]	@ SURFACE	08/25/88	Di-n-Butyl Phthalate	0.04
			Hydrocarbons (C_9-C_{22})	0.30

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TABLE 2
(continued)
SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES

SAMPLE IDENTIFIER	SAMPLED[1/] DEPTH INTERVAL (feet)	DATE SAMPLED	ORGANIC COMPOUND	CONCENTRATION OF CONTAMINATS DETECTED (mg/kg)
ESADA CHEMICAL STORAGE YARD				
ESADA-2	1.0 - 1.5	08/23/88	Branched Hydrocarbon C_6	0.9
TRENCH IN THE B-100 AREA				
B-100-2	@ 3.5	08/25/88	Branched Alkane C_{26}	0.2
			Branched Alkane C_{27}	0.5
			Branched Alkane C_{29}	0.4
B-100-3	@ 3.0	08/25/88	Branched Hydrocarbon C_{26}	0.7
			Branched Cyclic Hydrocarbon C_2	0.6
			Branched Cyclic Hydrocarbon C_2	1
			Branched Cyclic Hydrocarbon C_2	0.7
			Branched Cyclic Hydrocarbon C_2	1
			Hydrocarbons C_{22}-C_{30}	300
B-100-4	@ 4.0	08/25/88	Branched Aromatic C_{22}	3
			Branched Hydrocarbon C_{27}	1
			Branched Hydrocarbon C_{27}	1
			Branched Hydrocarbon C_{28}	1
			Branched Hydrocarbon C_{28}	1
			Hydrocarbons C_{19}-C_{30}	400

NOTE:

1/ Sampled depth intervals are in feet below land surface.

2/ Tank excavation soil pile.

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APPENDIX A

METHODS FOR COLLECTION OF SOIL SAMPLES

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GROUNDWATER RESOURCES CONSULTANTS, INC.

APPENDIX A

METHODS FOR COLLECTION OF SOIL SAMPLES

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METHODS FOR COLLECTION OF SOIL SAMPLES A-1

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APPENDIX A

METHODS FOR COLLECTION OF SOIL SAMPLES

Soil samples were collected from sampling trenches excavated by backhoe at the Old Conservation Yard, the B-133 Sodium Burn Facility, and the B-100 Trench area. Soil sample collection at the RMDF Leachfield was restricted to surface soils due to shallow bedrock conditions. At each of these locations, samples were collected with a hand-held slide hammer in two-inch diameter, six-inch long brass sampling tubes.

Soil borings were constructed with a bucket auger rig at the ESADA Chemical Storage Yard, Southeast Drum Storage Area and the New Conservation yard. Soil samples were collected in two-inch diameter, six-inch long brass sampling tubes using a modified California core sampler.

Brass sampling tubes used for soil sample collection were cleaned with Alconox laboratory detergent prior to use. Immediately after the sample was taken, the tubes were capped with Teflon-lined plastic end caps, labeled, packaged and placed in ice chests. Information regarding soil sample location and sample depth intervals was recorded on sample tube labels and on sample collection forms.

Letters of transmittal, chain-of-custody documentation and laboratory analyses request forms were prepared at the end of the

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sampling event and placed in a waterproof bag. The ice chest containing samples and sample documentation was clearly labeled and sealed to prevent tampering during transport to the laboratory. The samples analyzed by TMA/NORCAL (collected from RMDF Leachfield, Old Conservation Yard, and the B-133 Sodium Burn Facility) were delivered by TMA/NORCAL personnel to the laboratory within 24 hours of sample collection. The samples collected from the New Conservation Yard, Southeast Drum Storage Area, ESADA Chemical Storage Yard, and the Trench in the B-100 Area were delivered to the ATI Laboratory within 72 hours of sample collection. The samples were shipped via Greyhound Bus Lines to the ATI Laboratory in San Diego, California.

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APPENDIX B

SUMMARY OF SOIL SAMPLES COLLECTED

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GROUNDWATER RESOURCES CONSULTANTS, INC.

APPENDIX B

SUMMARY OF SOIL SAMPLES COLLECTED

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B-1 SUMMARY OF SOIL SAMPLES COLLECTED

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE B-1

SUMMARY OF SOIL SAMPLES COLLECTED

IDENTIFICATION OF SAMPLING LOCATION	DEPTH INTERVAL SAMPLED (feet)	SOIL TYPE	ANALYSES PERFORMED
RMDF LEACHFIELD			
RMDF-1	0.0 - 0.5	SILTY SAND	A, NaK, R
RMDF-2	0.0 - 0.5	SILTY SAND	A, NaK, R
RMDF-3	0.0 - 0.5	SILTY SAND	A, NaK, R
RMDF-4	0.0 - 0.5	SILTY SAND	A, NaK, R
RMDF-5	0.0 - 0.5	SILTY SAND	A, NaK, R
RMDF-6	0.0 - 0.5	SILTY SAND	A, NaK, R
OLD CONSERVATION YARD			
OLDCONS-1	0.0 - 0.5	SANDY SILT	A, NaK, H, R
OLDCONS-2	0.5 - 1.0	SANDY SILT	A, NaK, H, R
OLDCONS-3	3.0 - 3.5	SANDY SILT	A, NaK, H, R
OLDCONS-4	0.0 - 0.5	SANDY SILT	A, NaK, H, R
OLDCONS-5	0.0 - 0.5	SANDY SILT	A, NaK, H, R
OLDCONS-6	0.0 - 0.5	SANDY SILT	A, NaK, H, R
NEW CONSERVATION YARD			
NEWCONS-1	1.0 - 1.5	SILTY SAND	A, H
	3.5 - 4.0	SILTY SAND	A, H
NEWCONS-2	1.0 - 1.5	SILTY SAND	A, H
	3.5 - 4.0	SILTY SAND	A, H
NEWCONS-3	1.0 - 1.5	SANDY SILT	A, H
	3.3 - 3.8	SILTY SAND	A, H
B-133, SODIUM BURN PIT			
B-133-1	@ 2.0	SILTY SAND	A, NaK, H, R
B-133-2	1.2 - 1.7	SILTY CLAY	A, NaK, H, R
B-133-3	0.3 - 0.8	SILTY CLAY(FILL)	A, NaK, H, R
B-133-4	2.5 - 3.0	SILTY CLAY(FILL)	A, NaK, H, R
B-133-5	@ 9.0	FILL/DEBRIS	A, NaK, H, R
B-133-6[1/]	SURFACE	SILTY CLAY	A, NaK, H, R
SOUTHEAST DRUM STORAGE AREA			
SEDRUM 1	1.0 - 1.5	SILTY SAND	A, H
	3.5 - 4.0	SILTY SAND	A, H
SEDRUM 2	1.0 - 1.5	SILTY SAND	A, H
	3.5 - 4.0	SILTY SAND	A, H
SEDRUM 3	2.0 - 2.5	SILTY SAND	A, H
	3.5 - 4.0	SILTY SAND	A, H

1/ Tank excavation soil pile.

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TABLE B-1
(continued)
SUMMARY OF SOIL SAMPLES COLLECTED

IDENTIFICATION OF SAMPLING LOCATION	DEPTH INTERVAL SAMPLED (feet)	SOIL TYPE	ANALYSES PERFORMED
TRENCH IN B-100 AREA			
B-100-1	2.0 - 2.5	FILL/DEBRIS	A, H
B-100-2	@ 3.5	FILL/DEBRIS	A, H
B-100-3	@ 3.0	FILL/DEBRIS	A, H
B-100-4	@ 4.0	FILL/DEBRIS	A, H
ESADA CHEMICAL STORAGE AREA			
ESADA 1	1.5 - 2.0	SILTY CLAY	A, H, NaK
	4.0 - 4.5	SILTY CLAY	A, H, NaK
ESADA 2	1.0 - 1.5	SILTY CLAY	A, H, NaK
	4.5 - 5.0	SILTY SAND	A, H, NaK
ESADA 3	1.0 - 1.5	SILTY CLAY	A, H, NaK
	3.5 - 4.0	SILTY CLAY	A, H, NaK

EXPLANATION:

A = Volatile Organic Compounds, Method 8240; Base/Neutral and Acid Organic Compounds, method 8270 and soil pH, method 9045.

NaK = Sodium and Potassium, method 6010.

H = Hydrocarbons, method 8015.

R = Gross Alpha and Gross Beta Radiation, method 900.0, modified.

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APPENDIX C

LITHOLOGIC LOGS OF SOIL BORINGS, TRENCH EXCAVATIONS, AND SURFACE SAMPLES

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APPENDIX C

LITHOLOGIC LOGS OF SOIL BORINGS

TRENCH EXCAVATIONS, AND SURFACE SAMPLES

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C-3	LITHOLOGIC LOG OF SOIL BORING NEWCONS-1, NEW CONSERVATION YARD
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C-5	LITHOLOGIC LOG OF SOIL BORING NEWCONS-3, NEW CONSERVATION YARD
C-6	LITHOLOGIC LOG OF TRENCH EXCAVATIONS AND SURFACE SAMPLES, B-133 SODIUM BURN FACILITY
C-7	LITHOLOGIC LOG OF SOIL BORING SEDRUM-1, SOUTHEAST DRUM STORAGE AREA
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C-12	LITHOLOGIC LOG OF SOIL BORING ESADA-3, ESADA CHEMICAL STORAGE YARD
C-13	LITHOLOGIC LOG OF TRENCH EXCAVATIONS, TRENCH IN B-100 AREA

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TABLE C-1

LITHOLOGIC LOG OF SURFICIAL SAMPLES

RMDF LEACHFIELD

SAMPLING LOCATION	DEPTH INTERVAL (feet)	DESCRIPTION
RMDF-1	0.0 - 0.5	Silty sand, light brown, dry.
RMDF-2	0.0 - 0.5	Silty sand, light brown, dry.
RMDF-3	0.0 - 0.5	Silty sand, light brown, dry.
RMDF-4	0.0 - 0.5	Silty sand, light brown, dry.
RMDF-5	0.0 - 0.5	Silty sand, light brown, dry.
RMDF-6	0.0 - 0.5	Silty sand, light brown, dry.

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TABLE C-2

LITHOLOGIC LOG OF TRENCH EXCAVATIONS AND SURFACE SAMPLES

OLD CONSERVATION YARD

SAMPLING LOCATION	DEPTH INTERVAL (feet)	DESCRIPTION	SAMPLES COLLECTED
TRENCH #1 (OLDCONS-1)	0.0 - 4.5	Silty sand, brown, dry. At 4.5 feet, Chatsworth Formation.	0.0 - 0.5 feet
TRENCH #2	0.0 - 2.0	Sandy silt, brown, dry. At 2.0 feet, Chatsworth Formation.	
TRENCH #3 (OLDCONS-2)	0.0 - 5.0	Sandy silt with clay, medium brown, dry. From 1.8 to 5.0 feet, discolored, purple, grey, fuel odor.	0.5 - 1.0 feet
(OLDCONS-3)		At 5.0 feet, Chatsworth Formation.	3.0 - 3.5 feet
SURFACE (OLDCONS-4)	0.0 - 0.5	Sandy silt, mottled brown and dark brown, dry.	0.0 - 0.5 feet
SURFACE (OLDCONS-5)	0.0 - 0.5	Sandy silt, brown, dry.	0.0 - 0.5 feet
SURFACE (OLDCONS-6)	0.0 - 0.5	Sandy silt, brown, dry.	0.0 - 0.5 feet

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TABLE C-3

LITHOLOGIC LOG OF SOIL BORING NEWCONS-1

NEW CONSERVATION YARD

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL	
0 - 3.5		SANDY SILT WITH SOME CLAY	Reddish brown, very low plasticity, soft, dry.
3.5 - 4.0		SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, loose, slightly moist.
			At 4.0 feet, Chatsworth Formation.

TOTAL DEPTH OF BOREHOLE: 4.0 FEET

SAMPLED INTERVALS: 1.0 - 1.5 feet and 3.5 - 4.0 feet

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TABLE C-4

LITHOLOGIC LOG OF SOIL BORING NEWCONS-2

NEW CONSERVATION YARD

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL
0 - 3.5	SANDY SILT	Brown, very low plasticity, soft, dry.
3.5 - 4.0	SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, loose, slightly moist.
		At 4.0 feet, Chatsworth Formation.

TOTAL DEPTH OF BOREHOLE: 4.0 FEET

SAMPLED INTERVALS: 1.0 - 1.5 feet and 3.5 - 4.0 feet

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE C-5

LITHOLOGIC LOG OF SOIL BORING NEWCONS-3

NEW CONSERVATION YARD

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL	
0 - 3.3		SANDY SILT	Brown, very low plasticity, soft, dry.
3.3 - 4.0		SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, loose, slightly moist.
4.0 - 6.0		SILTY SANDSTONE (CHATSWORTH FORMATION)	Light brown, moderately well cemented, slightly moist.

TOTAL DEPTH OF BOREHOLE: 6.0 FEET

SAMPLED INTERVALS: 1.0 - 1.5 feet and 3.3 - 3.8 feet

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE C-6

LITHOLOGIC LOG OF TRENCH EXCAVATIONS AND SURFACE SAMPLES

B-133 SODIUM BURN FACILITY

SAMPLING LOCATION	DEPTH INTERVAL (feet)	DESCRIPTION	SAMPLES COLLECTED
DRAIN PIPE TRENCH IN B-133 ENCLOSURE (B-133-1)	0.0 - 1.7	Concrete.	
	1.8 - 2.0	Silty sand with clay, brown, slightly moist	At 2.0 feet
DRAIN PIPE TRENCH IN B-133 ENCLOSURE (B-133-2)	0.0 - 0.4	Asphalt.	
	0.4 - 1.2	Compacted gravel.	
	1.2 - 1.7	Silty clay with sand and gravel, light brown, slightly moist (compacted fill)	1.2 - 1.7 feet
SAMPLING TRENCH (B-133-3)	0.0 - 9.0	Silty clay with sand, light brown, slightly moist.	0.3 - 0.8 feet
(B-133-4)			2.5 - 3.0 feet
(B-133-5)	9.0 - 13.5	Silty clay, dark brown, mosit.	At 9.0 feet
		At 9.0 feet, zone of burned vegetation, barbed wire, mottled soil black, orange, and brown.	
DIRT PILE EXCAVATED FROM TANK SITE INSIDE B-133 ENCLOSURE (B-133-6)		Silty clay with sand, dry, no odor.	Surface Sample

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE C-7

LITHOLOGIC LOG OF SOIL BORING SEDRUM-1

SOUTHEAST DRUM STORAGE AREA

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL	
0 - 3.5		SANDY SILT WITH SOME CLAY	Brown, low plasticity, soft, dry.
3.5 - 4.0		SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, loose, slightly moist.
4.0 - 7.5		SILTY SANDSTONE (CHATSWORTH FORMATION)	Light brown, well cemented, dry.

TOTAL DEPTH OF BOREHOLE: 7.5 FEET

SAMPLED INTERVALS: 1.0 - 1.5 feet and 3.5 - 4.0 feet.

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TABLE C-8

LITHOLOGIC LOG OF SOIL BORING SEDRUM-2

SOUTHEAST DRUM STORAGE AREA

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL
0 - 3.5	CLAYEY SANDY SILT	Brown, low plasticity, soft, dry.
3.5 - 4.0	SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, loose, slightly moist.
4.0 - 5.0	SILTY SANDSTONE (CHATSWORTH FORMATION)	Light brown, well cemented, slightly moist.

TOTAL DEPTH OF BOREHOLE: 5.0 FEET

SAMPLED INTERVALS: 1.0 - 1.5 feet and 3.5 - 4.0 feet.

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TABLE C-9

LITHOLOGIC LOG OF SOIL BORING SEDRUM-3

SOUTHEAST DRUM STORAGE AREA

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL	
0 - 6.0		SANDY CLAYEY SILT	Brown, low plasticity, soft, dry.
6.0 - 7.0		SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, loose, moist.
7.0 - 8.5		SILTY SANDSTONE (CHATSWORTH FORMATION)	Light brown, well cemented, moist.

TOTAL DEPTH OF BOREHOLE: 8.5 FEET

SAMPLED INTERVALS: 2.0 - 2.5 feet and 3.5 - 4.0 feet.

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE C-10

LITHOLOGIC LOG OF SOIL BORING ESADA-1

ESADA CHEMICAL STORAGE YARD

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL
0 - 6.5	SILTY CLAY	Light brown, low plasticity, soft, slightly moist.
6.5 - 10.0	SILTY CLAY	Mottled light brown and light grey, moderately plastic, firm, slightly moist.
10.0 - 13.0	SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Very light brown, cementation increasing with depth, slightly moist.
		At 13.0 feet, Chatsworth Formation.

TOTAL DEPTH OF BOREHOLE: 13.0 FEET

SAMPLED INTERVALS: 1.5 - 2.0 feet and 4.0 - 4.5 feet.

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE C-11

LITHOLOGIC LOG OF SOIL BORING ESADA-2

ESADA CHEMICAL STORAGE YARD

DEPTH INTERVAL (feet)		DESCRIPTION OF MATERIAL
0 - 4.5	SILTY CLAY	Reddish brown, moderately plastic, soft, dry.
4.5 - 5.0	SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, non-plastic, cementation increasing with depth, slightly moist. At 5.0 feet, Chatsworth Formation.

TOTAL DEPTH OF BOREHOLE: 5.0 FEET

SAMPLED INTERVALS: 1.0 - 1.5 feet and 4.5 - 5.0 feet.

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE C-12

LITHOLOGIC LOG OF SOIL BORING ESADA-3

ESADA CHEMICAL STORAGE AREA

DEPTH INTERVAL (feet)				DESCRIPTION OF MATERIAL
0	-	6.5	SILTY CLAY WITH SOME SAND	Brown, moderately well graded, moderately plastic, stiff, slightly moist.
6.5	-	7.0	SILTY SAND (WEATHERED CHATSWORTH FORMATION)	Light brown, compact, slightly moist.
				At 7.0 feet, Chatsworth Formation.

TOTAL DEPTH OF BOREHOLE: 7.0 FEET

SAMPLED INTERVALS: 1.0 - 1.5 feet and 3.5 - 4.0 feet.

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE C-13

LITHOLOGIC LOG OF TRENCH EXCAVATIONS

TRENCH IN B-100 AREA

SAMPLING LOCATION	DEPTH INTERVAL (feet)	DESCRIPTION	SAMPLES COLLECTED
TRENCH #1	0.0 - 0.5	Sandy silt, light brown, dry.	
(B-100-1)	0.5 - 5.0	Sandy silt, mottled grey and dark brown, with ash, re-bar, steel	2.0 - 2.5 feet
(B-100-2)		mesh, glass, tin, fiberglass insulation, slightly moist.	At 3.5 feet
		At 5.0 feet, Chatsworth Formation.	
		TOTAL DEPTH OF TRENCH: 5.0 FEET	
TRENCH #2	0.0 - 0.5	Sandy silt, light brown, dry.	
(B-100-3)	1.0 - 5.0	Sandy silt, mottled grey and dark brown, with ash, re-bar, steel	At 3.0 feet
(B-100-4)		mesh, glass, tin, slightly moist.	At 4.0 feet
		At 5.0 feet, Chatsworth Formation.	
		TOTAL DEPTH OF TRENCH: 5.0 FEET	

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APPENDIX D

RESULTS OF LABORATORY ANALYSIS FOR

VOLATILE ORGANIC COMPOUNDS

HDMSe00029151

APPENDIX D

RESULTS OF LABORATORY ANALYSIS FOR VOLATILE ORGANIC COMPOUNDS

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HDMSe00029152

TABLE D-1
RESULTS OF ANALYSES FOR EPA PRIORITY VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM RMDF LEACHFIELD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER RMDF-1	RMDF-2	RMDF-3	RMDF-4	RMDF-5	RMDF-6
Acrolein	---	---	---	---	---	---
Acrylonitrile	---	---	---	---	---	---
Benzene	-5	-5	-5	-5	-5	-5
Bromodichloromethane	-5	-5	-5	-5	-5	-5
Bromoform	-5	-5	-5	-5	-5	-5
Bromomethane	-10	-10	-10	-10	-10	-10
Carbon Tetrachloride	-5	-5	-5	-5	-5	-5
Chlorobenzene	-5	-5	-5	-5	-5	-5
Chloroethane	-10	-10	-10	-10	-10	-10
2-Chloroethylvinyl Ether	---	---	---	---	---	---
Chloroform	-5	-5	-5	-5	-5	-5
Chloromethane	-10	-10	-10	-10	-10	-10
Dibromochloromethane	-5	-5	-5	-5	-5	-5
1,1-Dichloroethane	-5	-5	-5	-5	-5	-5
1,2-Dichloroethane	-5	-5	-5	-5	-5	-5
1,1-Dichloroethylene	-5	-5	-5	-5	-5	-5
Trans-1,2-Dichloroethylene	-5	-5	-5	-5	-5	-5
1,2-Dichloropropane	-5	-5	-5	-5	-5	-5
1,3-Dichloropropylene	-5	-5	-5	-5	-5	-5
Ethylbenzene	-4	-4	**5**	**8**	**5**	**5**
Methylene Chloride	**7**	-5	-5	-5	-5	-5
1,1,2,2-Tetrachloroethane	-5	-5	-5	-5	-5	-5
Tetrachloroethylene	-5	-5	-5	-5	-5	-5
1,1,1-Trichloroethane	-5	-5	-5	-5	-5	-5
1,1,2-Trichloroethane	-5	-5	-5	-5	-5	-5
Trichloroethylene	-5	-5	-5	-5	-5	-5
Toluene	**34**	**25**	**51**	**28**	**30**	**31**
Vinyl Chloride	-10	-10	-10	-10	-10	-10
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88
Method	8240	8240	8240	8240	8240	8240
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029153

TABLE D-2
RESULTS OF ANALYSES FOR EPA PRIORITY VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM OLD CONSERVATION YARD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER					
	OLD CONS-1	OLD CONS-2	OLD CONS-3	OLD CONS-4	OLD CONS-5	OLD CONS-6
Acrolein	---	---	---	---	---	---
Acrylonitrile	---	---	---	---	---	---
Benzene	-5	-5	-5	-5	-5	-5
Bromodichloromethane	-5	-5	-5	-5	-5	-5
Bromoform	-5	-5	-5	-5	-5	-5
Bromomethane	-10	-10	-10	-10	-10	-10
Carbon Tetrachloride	-5	-5	-5	-5	-5	-5
Chlorobenzene	-5	-5	-5	-5	-5	-5
Chloroethane	-10	-10	-10	-10	-10	-10
2-Chloroethylvinyl Ether	---	---	---	---	---	---
Chloroform	-5	-5	-5	-5	-5	-5
Chloromethane	-10	-10	-10	-10	-10	-10
Dibromochloromethane	-5	-5	-5	-5	-5	-5
1,1-Dichloroethane	-5	-5	-5	-5	-5	-5
1,2-Dichloroethane	-5	-5	-5	-5	-5	-5
1,1-Dichloroethylene	-5	-5	-5	-5	-5	-5
Trans-1,2-Dichloroethylene	-5	-5	-5	-5	-5	-5
1,2-Dichloropropane	-5	-5	-5	-5	-5	-5
1,3-Dichloropropylene	-5	-5	-5	-5	-5	-5
Ethylbenzene	-4	-5	-5	-5	-5	-5
Methylene Chloride	-5	-5	6	-5	-5	-5
1,1,2,2-Tetrachloroethane	-5	-5	-5	-5	-5	-5
Tetrachloroethylene	-5	-5	-5	-5	-5	-5
1,1,1-Trichloroethane	-5	-5	-5	-5	-5	-5
1,1,2-Trichloroethane	-5	-5	-5	-5	-5	-5
Trichloroethylene	-5	-5	-5	-5	-5	-5
Toluene	-3	7	-5	-5	14	-5
Vinyl Chloride	-10	-10	-10	-10	-10	-10
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88
Method	8240	8240	8240	8240	8240	8240
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029154

TABLE D-3
RESULTS OF ANALYSES FOR EPA PRIORITY VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM NEW CONSERVATION YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER					
	NEW CONS-1 (1.5'-2.0')	NEW CONS-1 (3.5'-4.0')	NEW CONS-2 (1.0'-1.5')	NEW CONS-2 (3.5'-4.0')	NEW CONS-3 (1.0'-1.5')	NEW CONS-3 (3.3'-3.8')
Acrolein	---	---	---	---	---	---
Acrylonitrile	---	---	---	---	---	---
Benzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Bromodichloromethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Bromoform	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30
Bromomethane	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Carbon Tetrachloride	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chlorobenzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
2-Chloroethylvinyl Ether	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Chloroform	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chloromethane	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Dibromochloromethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,2-Dichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Trans-1,2-Dichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,2-Dichloropropane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,3-Dichloropropylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Ethylbenzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Methylene Chloride	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
1,1,2,2-Tetrachloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Tetrachloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1,1-Trichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1,2-Trichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Trichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Toluene	-0.05	-0.05	-0.05	-0.05	**0.11**	-0.05
Vinyl Chloride	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Date Sampled	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88
Method	8240	8240	8240	8240	8240	8240
Laboratory	ATI	ATI	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029155

TABLE D-4

RESULTS OF ANALYSES FOR EPA PRIORITY VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM B-133, SODIUM BURN PIT

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER					
	B-133-1	B-133-2	B-133-3	B-133-4	B-133-5	B-133-6
Acrolein	---	---	---	---	---	---
Acrylonitrile	---	---	---	---	---	---
Benzene	-5	-5	-5	-5	-5	-5
Bromodichloromethane	-5	-5	-5	-5	-5	-5
Bromoform	-5	-5	-5	-5	-5	-5
Bromomethane	-10	-10	-10	-10	-10	-10
Carbon Tetrachloride	-5	-5	-5	-5	-5	-5
Chlorobenzene	-5	-5	-5	-5	-5	-5
Chloroethane	-10	-10	-10	-10	-10	-10
2-Chloroethylvinyl Ether	---	---	---	---	---	---
Chloroform	-5	-5	-5	-5	-5	-5
Chloromethane	-10	-10	-10	-10	-10	-10
Dibromochloromethane	-5	-5	-5	-5	-5	-5
1,1-Dichloroethane	-5	-5	-5	-5	-5	-5
1,2-Dichloroethane	-5	-5	-5	-5	-5	-5
1,1-Dichloroethylene	-5	-5	-5	-5	-5	-5
Trans-1,2-Dichloroethylene	-5	-5	-5	-5	-5	-5
1,2-Dichloropropane	-5	-5	-5	-5	-5	-5
1,3-Dichloropropylene	-5	-5	-5	-5	-5	-5
Ethylbenzene	-5	-5	-5	-5	-5	-5
Methylene Chloride	-5	-5	-5	-5	-5	-5
1,1,2,2-Tetrachloroethane	-5	-5	-5	-5	-5	-5
Tetrachloroethylene	-5	-5	-5	-5	-5	-5
1,1,1-Trichloroethane	-5	-5	-5	-5	-5	-5
1,1,2-Trichloroethane	-5	-5	-5	-5	-5	-5
Trichloroethylene	-5	-5	-5	-5	-5	-5
Toluene	-5	-5	-5	-5	-5	-5
Vinyl Chloride	-10	-10	-10	-10	-10	-10
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88
Method	8240	8240	8240	8240	8240	8240
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029156

TABLE D-5
RESULTS OF ANALYSES FOR EPA PRIORITY VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM SOUTHEAST DRUM STORAGE

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER					
	SE DRUM 1 (1.0'-1.5')	SE DRUM 1 (3.5'-4.0')	SE DRUM 2 (1.0'-1.5')	SE DRUM 2 (3.5'-4.0')	SE DRUM 3 (2.0'-2.5')	SE DRUM 3 (3.5'-4.0')
Acrolein	---	---	---	---	---	---
Acrylonitrile	---	---	---	---	---	---
Benzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Bromodichloromethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Bromoform	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30
Bromomethane	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Carbon Tetrachloride	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chlorobenzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
2-Chloroethylvinyl Ether	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Chloroform	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chloromethane	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Dibromochloromethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,2-Dichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Trans-1,2-Dichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,2-Dichloropropane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,3-Dichloropropylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Ethylbenzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Methylene Chloride	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
1,1,2,2-Tetrachloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Tetrachloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1,1-Trichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1,2-Trichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Trichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Toluene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Vinyl Chloride	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Date Sampled	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88
Method	8240	8240	8240	8240	8240	8240
Laboratory	ATI	ATI	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029157

TABLE D-6
RESULTS OF ANALYSES FOR EPA PRIORITY VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM ESADA CHEMICAL STORAGE AREA

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER					
	ESADA 1 (1.5'-2.0')	ESADA 1 (4.0'-4.5')	ESADA 2 (1.0'-1.5')	ESADA 3 (4.5'-5.0')	ESADA 3 (1.0'-1.5')	ESADA 3 (3.5'-4.0')
Acrolein	---	---	---	---	---	---
Acrylonitrile	---	---	---	---	---	---
Benzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Bromodichloromethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Bromoform	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30
Bromomethane	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Carbon Tetrachloride	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chlorobenzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
2-Chloroethylvinyl Ether	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Chloroform	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Chloromethane	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Dibromochloromethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,2-Dichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Trans-1,2-Dichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,2-Dichloropropane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,3-Dichloropropylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Ethylbenzene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Methylene Chloride	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
1,1,2,2-Tetrachloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Tetrachloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1,1-Trichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
1,1,2-Trichloroethane	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Trichloroethylene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Toluene	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Vinyl Chloride	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Date Sampled	08/23/88	08/23/88	08/23/88	08/23/88	08/24/88	08/24/88
Method	8240	8240	8240	8240	8240	8240
Laboratory	ATI	ATI	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029158

TABLE D-7
RESULTS OF ANALYSES FOR EPA PRIORITY VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM TRENCH IN B-100 AREA TRENCH

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER B-100-1	B-100-2	B-100-3	B-100-4
Acrolein	---	---	---	---
Acrylonitrile	---	---	---	---
Benzene	-0.05	-0.05	-0.05	-0.05
Bromodichloromethane	-0.05	-0.05	-0.05	-0.05
Bromoform	-0.30	-0.30	-0.30	-0.30
Bromomethane	-0.50	-0.50	-0.50	-0.50
Carbon Tetrachloride	-0.05	-0.05	-0.05	-0.05
Chlorobenzene	-0.05	-0.05	-0.05	-0.05
Chloroethane	-0.05	-0.05	-0.05	-0.05
2-Chloroethylvinyl Ether	-0.50	-0.50	-0.50	-0.50
Chloroform	-0.05	-0.05	-0.05	-0.05
Chloromethane	-0.50	-0.50	-0.50	-0.50
Dibromochloromethane	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethane	-0.05	-0.05	-0.05	-0.05
1,2-Dichloroethane	-0.05	-0.05	-0.05	-0.05
1,1-Dichloroethylene	-0.05	-0.05	-0.05	-0.05
Trans-1,2-Dichloroethylene	-0.05	-0.05	-0.05	-0.05
1,2-Dichloropropane	-0.05	-0.05	-0.05	-0.05
1,3-Dichloropropylene	-0.05	-0.05	-0.05	-0.05
Ethylbenzene	-0.05	-0.05	-0.05	-0.05
Methylene Chloride	-0.3	-0.3	-0.3	-0.3
1,1,2,2-Tetrachloroethane	-0.05	-0.05	-0.05	-0.05
Tetrachloroethylene	-0.05	-0.05	-0.05	-0.05
1,1,1-Trichloroethane	-0.05	-0.05	-0.05	-0.05
1,1,2-Trichloroethane	-0.05	-0.05	-0.05	-0.05
Trichloroethylene	-0.05	-0.05	-0.05	-0.05
Toluene	-0.05	-0.05	-0.05	-0.05
Vinyl Chloride	-0.05	-0.05	-0.05	-0.05
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88
Method	8240	8240	8240	8240
Laboratory	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE D-8

SEMIQUANTIFIED/NON PRIORITY VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFIER	DATE SAMPLED	ORGANIC COMPOUND	CONCENTRATION (mg/kg)	METHOD	LABORATORY
RMDF LEACHFIELD					
RMDF-1	08/25/88	Total Xylenes	0.018	8240	TMA/NORCAL
RMDF-2	08/25/88	Total Xylenes	0.016	8240	TMA/NORCAL
		2-Butanone	0.013	8240	TMA/NORCAL
RMDF-3	08/25/88	Total Xylenes	0.026	8240	TMA/NORCAL
RMDF-4	08/25/88	Total Xylenes	0.039	8240	TMA/NORCAL
RMDF-5	08/25/88	Total Xylenes	0.022	8240	TMA/NORCAL
RMDF-6	08/25/88	Total Xylenes	0.026	8240	TMA/NORCAL
OLD CONSERVATION YARD					
OLDCONS2	08/25/88	Total Xylenes	0.013	8240	TMA/NORCAL
OLDCONS3	08/25/88	Acetone	0.014	8240	TMA/NORCAL
		Total Xylenes	0.006	8240	TMA/NORCAL
OLDCONS4	08/25/88	2-Butanone	0.011	8240	TMA/NORCAL
OLDCONS5	08/25/88	Total Xylenes	0.010	8240	TMA/NORCAL
NEW CONSERVATION YARD					
NEWCONS-1 (1.5'-2.0')	08/24/88	Cyclic Hydrocarbon C_{16}	0.2	8270	ATI
NEWCONS-3 (1.0'-1.5')	08/24/88	Branched Alkane C_{22}	0.7	8270	ATI
B-133-1 SODIUM BURN FACILITY					
B-133-1	08/25/88	2-Butanone	0.011	8240	TMA/NORCAL
B-133-2	08/25/88	Acetone	0.013	8240	TMA/NORCAL
		2-Butanone	0.099	8240	TMA/NORCAL
B-133-3	08/25/88	Acetone	0.018	8240	TMA/NORCAL
B-133-5	08/25/88	Total Xylenes	0.011	8240	TMA/NORCAL

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TABLE D-8
(continued)
SEMIQUANTIFIED/NON PRIORITY VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFIER	DATE SAMPLED	ORGANIC COMPOUND	CONCENTRATION (mg/kg)	METHOD	LABORATORY
ESADA CHEMICAL STORAGE YARD					
ESADA-2 (1.0'-1.5')	08/23/88	Branched Hydrocarbon C_6	0.9	8270	ATI
TRENCH IN THE B-100 AREA					
B-100-2	08/25/88	Branched Alkane C_{26}	0.2	8270	ATI
		Branched Alkane C_{27}	0.5	8270	ATI
		Branched Alkane C_{29}	0.4	8270	ATI
B-100-3	08/25/88	Branched Hydrocarbon C_{26}	0.7	8270	ATI
		Branched Cyclic Hydrocarbon C_2	0.6	8270	ATI
		Branched Cyclic Hydrocarbon C_2	1	8270	ATI
		Branched Cyclic Hydrocarbon C_2	0.7	8270	ATI
		Branched Cyclic Hydrocarbon C_2	1	8270	ATI
		Hydrocarbons C_{22}-C_{30}	300	8270	ATI
B-100-4	08/25/88	Branched Aromatic C_{22}	3	8270	ATI
		Branched Hydrocarbon C_{27}	1	8270	ATI
		Branched Hydrocarbon C_{27}	1	8270	ATI
		Branched Hydrocarbon C_{28}	1	8270	ATI
		Branched Hydrocarbon C_{28}	1	8270	ATI
		Hydrocarbons C_{19}-C_{30}	400	8270	ATI

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APPENDIX E

RESULTS OF LABORATORY ANALYSES FOR

BASE/NEUTRAL ORGANIC COMPOUNDS

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GROUNDWATER RESOURCES CONSULTANTS, INC.

APPENDIX E

RESULTS OF LABORATORY ANALYSES FOR BASE/NEUTRAL ORGANIC COMPOUNDS

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TABLE E-1

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM RMDF LEACHFIELD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER			
	RMDF-1	RMDF-2	RMDF-3	RMDF-4
Acenaphthene	-30	-30	-30	-30
Acenaphthylene	-30	-30	-30	-30
Anthracene	-30	-30	-30	-30
Benzidine	-200	-200	-200	-200
Benzo(a)anthracene	-30	-30	-30	-30
Benzo(a)pyrene	-30	-30	-30	-30
3,4-Benzofluoranthene	-30	-30	-30	-30
Benzo(ghi)perylene	-30	-30	-30	-30
Benzo(k)fluoranthene	-30	-30	-30	-30
Bis(2-chloroethyoxy) methane	-30	-30	-30	-30
Bis(2-chloroethyl) ether	-30	-30	-30	-30
Bis(2-chloroisopropyl) ether	-30	-30	-30	-30
Bis(2-ethylhexyl) phthalate	-30	-30	-30	-30
4-Bromophenyl phenyl ether	-30	-30	-30	-30
Butyl benzyl phthalate	-30	-30	-30	-30
2-Chloronaphthalene	-30	-30	-30	-30
4-Chlorophenyl phenyl ether	-30	-30	-30	-30
Chrysene	-30	-30	-30	-30
Dibenzo(a,h)anthracene	-30	-30	-30	-30
1,2-Dichlorobenzene	-30	-30	-30	-30
1,3-Dichlorobenzene	-30	-30	-30	-30
1,4-Dichlorobenzene	-30	-30	-30	-30
3,3'-Dichlorobenzidine	-60	-60	-60	-60
Diethyl phthalate	-30	-30	-30	-30
Dimethyl phthalate	-30	-30	-30	-30
Di-n-butyl phthalate	-30	-30	-30	-30
2,4-Dinitrotoluene	-30	-30	-30	-30
2,6-Dinitrotoluene	-30	-30	-30	-30
Di-n-octyl phthalate	-30	-30	-30	-30
1,2-Diphenylhydrazine	-30	-30	-30	-30
Fluoranthene	-30	-30	-30	-30
Fluorene	-30	-30	-30	-30
Hexachlorobenzene	-30	-30	-30	-30
Hexachlorobutadiene	-30	-30	-30	-30
Hexachlorocyclopentadiene	-30	-30	-30	-30
Hexachloroethane	-30	-30	-30	-30
Indeno(1,2,3-cd) pyrene	-30	-30	-30	-30
Isophorone	-30	-30	-30	-30
Naphthalene	-30	-30	-30	-30
Nitrobenzene	-30	-30	-30	-30
N-Nitrosodimethylamine	-30	-30	-30	-30
N-Nitrosodi-n-propylamine	-30	-30	-30	-30
N-Nitrosodiphenylamine	-30	-30	-30	-30
Phenanthrene	-30	-30	-30	-30
Pyrene	-30	-30	-30	-30
1,2,4-Trichlorobenzene	-30	-30	-30	-30
Method	8270	8270	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value is the Limit of Detection for that compound

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TABLE E-1 (continued)

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM RMDF LEACHFIELD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER RMDF-5	RMDF-6
Acenaphthene	-30	-30
Acenaphthylene	-30	-30
Anthracene	-30	-30
Benzidine	-200	-200
Benzo(a)anthracene	-30	-30
Benzo(a)pyrene	-30	-30
3,4-Benzofluoranthene	-30	-30
Benzo(ghi)perylene	-30	-30
Benzo(k)fluoranthene	-30	-30
Bis(2-chloroethyoxy) methane	-30	-30
Bis(2-chloroethyl) ether	-30	-30
Bis(2-chloroisopropyl) ether	-30	-30
Bis(2-ethylhexyl) phthalate	270	-30
4-Bromophenyl phenyl ether	-30	-30
Butyl benzyl phthalate	130	-30
2-Chloronaphthalene	-30	-30
4-Chlorophenyl phenyl ether	-30	-30
Chrysene	-30	-30
Dibenzo(a,h)anthracene	-30	-30
1,2-Dichlorobenzene	-30	-30
1,3-Dichlorobenzene	-30	-30
1,4-Dichlorobenzene	-30	-30
3,3'-Dichlorobenzidine	-60	-60
Diethyl phthalate	-30	-30
Dimethyl phthalate	-30	-30
Di-n-butyl phthalate	60	40
2,4-Dinitrotoluene	-30	-30
2,6-Dinitrotoluene	-30	-30
Di-n-octyl phthalate	60	-30
1,2-Diphenylhydrazine	-30	-30
Fluoranthene	-30	-30
Fluorene	-30	-30
Hexachlorobenzene	-30	-30
Hexachlorobutadiene	-30	-30
Hexachlorocyclopentadiene	-30	-30
Hexachloroethane	-30	-30
Indeno(1,2,3-cd) pyrene	-30	-30
Isophorone	-30	-30
Naphthalene	-30	-30
Nitrobenzene	-30	-30
N-Nitrosodimethylamine	-30	-30
N-Nitrosodi-n-propylamine	-30	-30
N-Nitrosodiphenylamine	-30	-30
Phenanthrene	-30	-30
Pyrene	-30	-30
1,2,4-Trichlorobenzene	-30	-30
Method	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL
Date Sampled	08/25/88	08/25/88

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value is the Limit of Detection for that compound

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GROUNDWATER RESOURCES CONSULTANTS, INC.
TABLE E-2

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS IN SOIL SAMPLES COLLECTED FROM OLD CONSERVATION YARD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER			
	OLD CONS-1	OLD CONS-2	OLD CONS-3	OLD CONS-4
Acenaphthene	-300	-300	-3000	-30
Acenaphthylene	-300	-300	-3000	-30
Anthracene	-300	-300	-3000	-30
Benzidine	-2000	-2000	-20000	-200
Benzo(a)anthracene	-300	-300	-3000	-30
Benzo(a)pyrene	-300	-300	-3000	-30
3,4-Benzofluoranthene	-300	-300	-3000	-30
Benzo(ghi)perylene	-300	-300	-3000	-30
Benzo(k)fluoranthene	-300	-300	-3000	-30
Bis(2-chloroethyoxy) methane	-300	-300	-3000	-30
Bis(2-chloroethyl) ether	-300	-300	-3000	-30
Bis(2-chloroisopropyl) ether	-300	-300	-3000	-30
Bis(2-ethylhexyl) phthalate	-300	-300	-3000	-30
4-Bromophenyl phenyl ether	-300	-300	-3000	-30
Butyl benzyl phthalate	-300	-300	-3000	-30
2-Chloronaphthalene	-300	-300	-3000	-30
4-Chlorophenyl phenyl ether	-300	-300	-3000	-30
Chrysene	500	-300	-3000	-30
Dibenzo(a,h)anthracene	-300	-300	-3000	-30
1,2-Dichlorobenzene	-300	-300	-3000	-30
1,3-Dichlorobenzene	-300	-300	-3000	-30
1,4-Dichlorobenzene	-300	-300	-3000	-30
3,3'-Dichlorobenzidine	-600	-600	-6000	-60
Diethyl phthalate	-300	-300	-3000	-30
Dimethyl phthalate	-300	-300	-3000	-30
Di-n-butyl phthalate	-300	-300	-3000	-30
2,4-Dinitrotoluene	-300	-300	-3000	-30
2,6-Dinitrotoluene	-300	-300	-3000	-30
Di-n-octyl phthalate	-300	-300	-3000	-30
1,2-Diphenylhydrazine	-300	-300	-3000	-30
Fluoranthene	2100	-300	-3000	-30
Fluorene	-300	-300	-3000	-30
Hexachlorobenzene	-300	-300	-3000	-30
Hexachlorobutadiene	-300	-300	-3000	-30
Hexachlorocyclopentadiene	-300	-300	-3000	-30
Hexachloroethane	-300	-300	-3000	-30
Indeno(1,2,3-cd) pyrene	-300	-300	-3000	-30
Isophorone	-300	-300	-3000	-30
Naphthalene	-300	-300	-3000	-30
Nitrobenzene	-300	-300	-3000	-30
N-Nitrosodimethylamine	-300	-300	-3000	-30
N-Nitrosodi-n-propylamine	-300	-300	-3000	-30
N-Nitrosodiphenylamine	-300	-300	-3000	-30
Phenanthrene	1600	-300	-3000	-30
Pyrene	1000	-300	-3000	-30
1,2,4-Trichlorobenzene	-300	-300	-3000	-30
Method	8270	8270	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value is the Limit of Detection for that compound

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GROUNDWATER RESOURCES CONSULTANTS, INC.
TABLE E-2 (continued)

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS IN SOIL SAMPLES COLLECTED FROM OLD CONSERVATION YARD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER	
	OLD CONS-5	OLD CONS-6
Acenaphthene	-300	-30
Acenaphthylene	-300	-30
Anthracene	-300	-30
Benzidine	-2000	-30
Benzo(a)anthracene	-300	-30
Benzo(a)pyrene	-300	-30
3,4-Benzofluoranthene	-300	-30
Benzo(ghi)perylene	-300	-30
Benzo(k)fluoranthene	-300	-30
Bis(2-chloroethyoxy) methane	-300	-30
Bis(2-chloroethyl) ether	-300	-30
Bis(2-chloroisopropyl) ether	-300	-30
Bis(2-ethylhexyl) phthalate	-300	-30
4-Bromophenyl phenyl ether	-300	-30
Butyl benzyl phthalate	-300	-30
2-Chloronaphthalene	-300	-30
4-Chlorophenyl phenyl ether	-300	-30
Chrysene	-300	-30
Dibenzo(a,h)anthracene	-300	-30
1,2-Dichlorobenzene	-300	-30
1,3-Dichlorobenzene	-300	-30
1,4-Dichlorobenzene	-300	-30
3,3'-Dichlorobenzidine	-600	-60
Diethyl phthalate	-300	-30
Dimethyl phthalate	-300	-30
Di-n-butyl phthalate	-300	-30
2,4-Dinitrotoluene	-300	-30
2,6-Dinitrotoluene	-300	-30
Di-n-octyl phthalate	-300	-30
1,2-Diphenylhydrazine	-300	-30
Fluoranthene	-300	-30
Fluorene	-300	-30
Hexachlorobenzene	-300	-30
Hexachlorobutadiene	-300	-30
Hexachlorocyclopentadiene	-300	-30
Hexachloroethane	-300	-30
Indeno(1,2,3-cd) pyrene	-300	-30
Isophorone	-300	-30
Naphthalene	-300	-30
Nitrobenzene	-300	-30
N-Nitrosodimethylamine	-300	-30
N-Nitrosodi-n-propylamine	-300	-30
N-Nitrosodiphenylamine	-300	-30
Phenanthrene	-300	-30
Pyrene	-300	-30
1,2,4-Trichlorobenzene	-300	-30
Method	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL
Date Sampled	08/25/88	08/25/88

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value is the Limit of Detection for that compound

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GROUNDWATER RESOURCES CONSULTANTS, INC.
TABLE E-3

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS IN SOIL SAMPLES COLLECTED FROM NEW CONSERVATION YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER			
	NEWCONS-1 (1.5'-2.0')	NEWCONS-1 (3.5'-4.0')	NEWCONS-2 (1.0'-1.5')	NEWCONS-2 (3.5'-4.0')
Acenaphthene	-0.17	-0.17	-0.17	-0.17
Acenaphthylene	-0.17	-0.17	-0.17	-0.17
Anthracene	-0.17	-0.17	-0.17	-0.17
Benzidine	-1.7	-1.7	-1.7	-1.7
Benzo(a)anthracene	-0.17	-0.17	-0.17	-0.17
Benzo(a)pyrene	-0.17	-0.17	-0.17	-0.17
3,4-Benzofluoranthene	-0.17	-0.17	-0.17	-0.17
Benzo(ghi)perylene	-0.17	-0.17	-0.17	-0.17
Benzo(k)fluoranthene	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyoxy) methane	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroisopropyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-ethylhexyl) phthalate	-0.17	-0.17	-0.17	-0.17
4-Bromophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Butyl benzyl phthalate	-0.17	-0.17	-0.17	-0.17
2-Chloronaphthalene	-0.17	-0.17	-0.17	-0.17
4-Chlorophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Chrysene	-0.17	-0.17	-0.17	-0.17
Dibenzo(a,h)anthracene	-0.17	-0.17	-0.17	-0.17
1,2-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,3-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,4-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
3,3'-Dichlorobenzidine	-0.34	-0.34	-0.34	-0.34
Diethyl phthalate	-0.17	-0.17	-0.17	-0.17
Dimethyl phthalate	-0.17	-0.17	-0.17	-0.17
Di-n-butyl phthalate	-0.17	-0.17	-0.17	-0.17
2,4-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
2,6-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
Di-n-octyl phthalate	-0.17	-0.17	-0.17	-0.17
1,2-Diphenylhydrazine	---	---	---	---
Fluoranthene	-0.17	-0.17	-0.17	-0.17
Fluorene	-0.17	-0.17	-0.17	-0.17
Hexachlorobenzene	-0.17	-0.17	-0.17	-0.17
Hexachlorobutadiene	-0.17	-0.17	-0.17	-0.17
Hexachlorocyclopentadiene	-0.17	-0.17	-0.17	-0.17
Hexachloroethane	-0.17	-0.17	-0.17	-0.17
Indeno(1,2,3-cd) pyrene	-0.17	-0.17	-0.17	-0.17
Isophorone	-0.17	-0.17	-0.17	-0.17
Naphthalene	-0.17	-0.17	-0.17	-0.17
Nitrobenzene	-0.17	-0.17	-0.17	-0.17
N-Nitrosodimethylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodi-n-propylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodiphenylamine	-0.17	-0.17	-0.17	-0.17
Phenanthrene	-0.17	-0.17	-0.17	-0.17
Pyrene	-0.17	-0.17	-0.17	-0.17
1,2,4-Trichlorobenzene	-0.17	-0.17	-0.17	-0.17
Method	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI
Date Sampled	08/24/88	08/24/88	08/24/88	08/24/88

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value is the Limit of Detection for that compound

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE E-3 (continued)

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM NEW CONSERVATION YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER	
	NEWCONS-3 (1.0'-1.5')	NEWCONS-3 (3.3'-3.8')
Acenaphthene	-0.17	-0.17
Acenaphthylene	-0.17	-0.17
Anthracene	-0.17	-0.17
Benzidine	-1.7	-1.7
Benzo(a)anthracene	-0.17	-0.17
Benzo(a)pyrene	-0.17	-0.17
3,4-Benzofluoranthene	-0.17	-0.17
Benzo(ghi)perylene	-0.17	-0.17
Benzo(k)fluoranthene	-0.17	-0.17
Bis(2-chloroethyoxy) methane	-0.17	-0.17
Bis(2-chloroethyl) ether	-0.17	-0.17
Bis(2-chloroisopropyl) ether	-0.17	-0.17
Bis(2-ethylhexyl) phthalate	-0.17	-0.17
4-Bromophenyl phenyl ether	-0.17	-0.17
Butyl benzyl phthalate	-0.17	-0.17
2-Chloronaphthalene	-0.17	-0.17
4-Chlorophenyl phenyl ether	-0.17	-0.17
Chrysene	-0.17	-0.17
Dibenzo(a,h)anthracene	-0.17	-0.17
1,2-Dichlorobenzene	-0.17	-0.17
1,3-Dichlorobenzene	-0.17	-0.17
1,4-Dichlorobenzene	-0.17	-0.17
3,3'-Dichlorobenzidine	-0.34	-0.34
Diethyl phthalate	-0.17	-0.17
Dimethyl phthalate	-0.17	-0.17
Di-n-butyl phthalate	-0.17	-0.17
2,4-Dinitrotoluene	-0.17	-0.17
2,6-Dinitrotoluene	-0.17	-0.17
Di-n-octyl phthalate	-0.17	-0.17
1,2-Diphenylhydrazine	---	---
Fluoranthene	-0.17	-0.17
Fluorene	-0.17	-0.17
Hexachlorobenzene	-0.17	-0.17
Hexachlorobutadiene	-0.17	-0.17
Hexachlorocyclopentadiene	-0.17	-0.17
Hexachloroethane	-0.17	-0.17
Indeno(1,2,3-cd) pyrene	-0.17	-0.17
Isophorone	-0.17	-0.17
Naphthalene	-0.17	-0.17
Nitrobenzene	-0.17	-0.17
N-Nitrosodimethylamine	-0.17	-0.17
N-Nitrosodi-n-propylamine	-0.17	-0.17
N-Nitrosodiphenylamine	-0.17	-0.17
Phenanthrene	-0.17	-0.17
Pyrene	-0.17	-0.17
1,2,4-Trichlorobenzene	-0.17	-0.17
Method	8270	8270
Laboratory	ATI	ATI
Date Sampled	08/24/88	08/24/88

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value is the Limit of Detection for that compound

HDMSe00029169

GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE E-4

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS IN SOIL SAMPLES COLLECTED FROM B-133, SODIUM BURNPIT

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER B-133-1	B-133-2	B-133-3	B-133-4
Acenaphthene	-300	-300	-300	-30
Acenaphthylene	-300	-300	-300	-30
Anthracene	-300	-300	-300	-30
Benzidine	-2000	-2000	-2000	-200
Benzo(a)anthracene	-300	-300	-300	-30
Benzo(a)pyrene	-300	-300	-300	-30
3,4-Benzofluoranthene	-300	-300	-300	-30
Benzo(ghi)perylene	-300	-300	-300	-30
Benzo(k)fluoranthene	-300	-300	-300	-30
Bis(2-chloroethyoxy) methane	-300	-300	-300	-30
Bis(2-chloroethyl) ether	-300	-300	-300	-30
Bis(2-chloroisopropyl) ether	-300	-300	-300	-30
Bis(2-ethylhexyl) phthalate	-300	-300	-300	-30
4-Bromophenyl phenyl ether	-300	-300	-300	-30
Butyl benzyl phthalate	-300	-300	-300	-30
2-Chloronaphthalene	-300	-300	-300	-30
4-Chlorophenyl phenyl ether	-300	-300	-300	-30
Chrysene	-300	-300	-300	-30
Dibenzo(a,h)anthracene	-300	-300	-300	-30
1,2-Dichlorobenzene	-300	-300	-300	-30
1,3-Dichlorobenzene	-300	-300	-300	-30
1,4-Dichlorobenzene	-300	-300	-300	-30
3,3'-Dichlorobenzidine	-600	-600	-600	-60
Diethyl phthalate	-300	-300	-300	-30
Dimethyl phthalate	-300	-300	-300	-30
Di-n-butyl phthalate	-300	-300	-300	-30
2,4-Dinitrotoluene	-300	-300	-300	-30
2,6-Dinitrotoluene	-300	-300	-300	-30
Di-n-octyl phthalate	-300	-300	-300	-30
1,2-Diphenylhydrazine	-300	-300	-300	-30
Fluoranthene	-300	-300	-300	-30
Fluorene	-300	-300	-300	-30
Hexachlorobenzene	-300	-300	-300	-30
Hexachlorobutadiene	-300	-300	-300	-30
Hexachlorocyclopentadiene	-300	-300	-300	-30
Hexachloroethane	-300	-300	-300	-30
Indeno(1,2,3-cd) pyrene	-300	-300	-300	-30
Isophorone	-300	-300	-300	-30
Naphthalene	-300	-300	-300	-30
Nitrobenzene	-300	-300	-300	-30
N-Nitrosodimethylamine	-300	-300	-300	-30
N-Nitrosodi-n-propylamine	-300	-300	-300	-30
N-Nitrosodiphenylamine	-300	-300	-300	-30
Phenanthrene	-300	-300	-300	-30
Pyrene	-300	-300	-300	-30
1,2,4-Trichlorobenzene	-300	-300	-300	-30
Method	8270	8270	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California

(-) = Less than; numerical value is the Limit of Detection for that compound

HDMSe00029170

GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE E-4 (continued)

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM B-133, SODIUM BURNPIT

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER B-133-5	B-133-6
Acenaphthene	-30	-30
Acenaphthylene	-30	-30
Anthracene	-30	-30
Benzidine	-200	-200
Benzo(a)anthracene	-30	-30
Benzo(a)pyrene	-30	-30
3,4-Benzofluoranthene	-30	-30
Benzo(ghi)perylene	-30	-30
Benzo(k)fluoranthene	-30	-30
Bis(2-chloroethyoxy) methane	-30	-30
Bis(2-chloroethyl) ether	-30	-30
Bis(2-chloroisopropyl) ether	-30	-30
Bis(2-ethylhexyl) phthalate	-30	-30
4-Bromophenyl phenyl ether	-30	-30
Butyl benzyl phthalate	-30	-30
2-Chloronaphthalene	-30	-30
4-Chlorophenyl phenyl ether	-30	-30
Chrysene	-30	-30
Dibenzo(a,h)anthracene	-30	-30
1,2-Dichlorobenzene	-30	-30
1,3-Dichlorobenzene	-30	-30
1,4-Dichlorobenzene	-30	-30
3,3'-Dichlorobenzidine	-60	-60
Diethyl phthalate	-30	-30
Dimethyl phthalate	-30	-30
Di-n-butyl phthalate	-30	40
2,4-Dinitrotoluene	-30	-30
2,6-Dinitrotoluene	-30	-30
Di-n-octyl phthalate	-30	-30
1,2-Diphenylhydrazine	-30	-30
Fluoranthene	-30	-30
Fluorene	-30	-30
Hexachlorobenzene	-30	-30
Hexachlorobutadiene	-30	-30
Hexachlorocyclopentadiene	-30	-30
Hexachloroethane	-30	-30
Indeno(1,2,3-cd) pyrene	-30	-30
Isophorone	-30	-30
Naphthalene	-30	-30
Nitrobenzene	-30	-30
N-Nitrosodimethylamine	-30	-30
N-Nitrosodi-n-propylamine	-30	-30
N-Nitrosodiphenylamine	-30	-30
Phenanthrene	-30	-30
Pyrene	-30	-30
1,2,4-Trichlorobenzene	-30	-30
Method	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL
Date Sampled	08/25/88	08/25/88

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California
(-) = Less than; numerical value is the Limit of Detection for that compound

HDMSe00029171

GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE E-5

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS IN SOIL SAMPLES COLLECTED FROM SOUTHEAST DRUM STORAGE YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER			
	SEDRUM-1 (1.0'-1.5')	SEDRUM-1 (3.5'-4.0')	SEDRUM-2 (1.0'-1.5')	SEDRUM-2 (3.5'-4.0')
Acenaphthene	-0.17	-0.17	-0.17	-0.17
Acenaphthylene	-0.17	-0.17	-0.17	-0.17
Anthracene	-0.17	-0.17	-0.17	-0.17
Benzidine	-1.7	-1.7	-1.7	-1.7
Benzo(a)anthracene	-0.17	-0.17	-0.17	-0.17
Benzo(a)pyrene	-0.17	-0.17	-0.17	-0.17
3,4-Benzofluoranthene	-0.17	-0.17	-0.17	-0.17
Benzo(ghi)perylene	-0.17	-0.17	-0.17	-0.17
Benzo(k)fluoranthene	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyoxy) methane	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroisopropyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-ethylhexyl) phthalate	-0.17	-0.17	-0.17	-0.17
4-Bromophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Butyl benzyl phthalate	-0.17	-0.17	-0.17	-0.17
2-Chloronaphthalene	-0.17	-0.17	-0.17	-0.17
4-Chlorophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Chrysene	-0.17	-0.17	-0.17	-0.17
Dibenzo(a,h)anthracene	-0.17	-0.17	-0.17	-0.17
1,2-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,3-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,4-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
3,3'-Dichlorobenzidine	-0.34	-0.34	-0.34	-0.34
Diethyl phthalate	-0.17	-0.17	-0.17	-0.17
Dimethyl phthalate	-0.17	-0.17	-0.17	-0.17
Di-n-butyl phthalate	-0.17	-0.17	-0.17	-0.17
2,4-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
2,6-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
Di-n-octyl phthalate	-0.17	-0.17	-0.17	-0.17
1,2-Diphenylhydrazine	---	---	---	---
Fluoranthene	-0.17	-0.17	-0.17	-0.17
Fluorene	-0.17	-0.17	-0.17	-0.17
Hexachlorobenzene	-0.17	-0.17	-0.17	-0.17
Hexachlorobutadiene	-0.17	-0.17	-0.17	-0.17
Hexachlorocyclopentadiene	-0.17	-0.17	-0.17	-0.17
Hexachloroethane	-0.17	-0.17	-0.17	-0.17
Indeno(1,2,3-cd) pyrene	-0.17	-0.17	-0.17	-0.17
Isophorone	-0.17	-0.17	-0.17	-0.17
Naphthalene	-0.17	-0.17	-0.17	-0.17
Nitrobenzene	-0.17	-0.17	-0.17	-0.17
N-Nitrosodimethylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodi-n-propylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodiphenylamine	-0.17	-0.17	-0.17	-0.17
Phenanthrene	-0.17	-0.17	-0.17	-0.17
Pyrene	-0.17	-0.17	-0.17	-0.17
1,2,4-Trichlorobenzene	-0.17	-0.17	-0.17	-0.17
Method	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI
Date Sampled	08/24/88	08/24/88	08/24/88	08/24/88

ATI = Analytical Technologies, Inc.

(-) = Less than; numerical value is the Limit of Detection for that compound

HDMSe00029172

GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE E-5 (continued)

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM SOUTHEAST DRUM STORAGE YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER SEDRUM-3 (2.0'-2.5')	SEDRUM-3 (3.5'-4.0')
Acenaphthene	-0.17	-0.17
Acenaphthylene	-0.17	-0.17
Anthracene	-0.17	-0.17
Benzidine	-1.7	-1.7
Benzo(a)anthracene	-0.17	-0.17
Benzo(a)pyrene	-0.17	-0.17
3,4-Benzofluoranthene	-0.17	-0.17
Benzo(ghi)perylene	-0.17	-0.17
Benzo(k)fluoranthene	-0.17	-0.17
Bis(2-chloroethyoxy) methane	-0.17	-0.17
Bis(2-chloroethyl) ether	-0.17	-0.17
Bis(2-chloroisopropyl) ether	-0.17	-0.17
Bis(2-ethylhexyl) phthalate	-0.17	-0.17
4-Bromophenyl phenyl ether	-0.17	-0.17
Butyl benzyl phthalate	-0.17	-0.17
2-Chloronaphthalene	-0.17	-0.17
4-Chlorophenyl phenyl ether	-0.17	-0.17
Chrysene	-0.17	-0.17
Dibenzo(a,h)anthracene	-0.17	-0.17
1,2-Dichlorobenzene	-0.17	-0.17
1,3-Dichlorobenzene	-0.17	-0.17
1,4-Dichlorobenzene	-0.17	-0.17
3,3'-Dichlorobenzidine	-0.34	-0.34
Diethyl phthalate	-0.17	-0.17
Dimethyl phthalate	-0.17	-0.17
Di-n-butyl phthalate	-0.17	-0.17
2,4-Dinitrotoluene	-0.17	-0.17
2,6-Dinitrotoluene	-0.17	-0.17
Di-n-octyl phthalate	-0.17	-0.17
1,2-Diphenylhydrazine	---	---
Fluoranthene	-0.17	-0.17
Fluorene	-0.17	-0.17
Hexachlorobenzene	-0.17	-0.17
Hexachlorobutadiene	-0.17	-0.17
Hexachlorocyclopentadiene	-0.17	-0.17
Hexachloroethane	-0.17	-0.17
Indeno(1,2,3-cd) pyrene	-0.17	-0.17
Isophorone	-0.17	-0.17
Naphthalene	-0.17	-0.17
Nitrobenzene	-0.17	-0.17
N-Nitrosodimethylamine	-0.17	-0.17
N-Nitrosodi-n-propylamine	-0.17	-0.17
N-Nitrosodiphenylamine	-0.17	-0.17
Phenanthrene	-0.17	-0.17
Pyrene	-0.17	-0.17
1,2,4-Trichlorobenzene	-0.17	-0.17
Method	8270	8270
Laboratory	ATI	ATI
Date Sampled	08/24/88	08/24/88

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value is the Limit of Detection for that compound

HDMSe00029173

GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE E-6

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS IN SOIL SAMPLES COLLECTED FROM ESADA CHEMICAL STORAGE YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER ESADA-1 (1.5'-2.0')	ESADA-1 (4.0'-4.5')	ESADA-2 (1.0'-1.5')	ESADA-2 (4.5'-5.0')
Acenaphthene	-0.17	-0.17	-0.17	-0.17
Acenaphthylene	-0.17	-0.17	-0.17	-0.17
Anthracene	-0.17	-0.17	-0.17	-0.17
Benzidine	-1.7	-1.7	-1.7	-1.7
Benzo(a)anthracene	-0.17	-0.17	-0.17	-0.17
Benzo(a)pyrene	-0.17	-0.17	-0.17	-0.17
3,4-Benzofluoranthene	-0.17	-0.17	-0.17	-0.17
Benzo(ghi)perylene	-0.17	-0.17	-0.17	-0.17
Benzo(k)fluoranthene	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyoxy) methane	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroisopropyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-ethylhexyl) phthalate	-0.17	-0.17	-0.17	-0.17
4-Bromophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Butyl benzyl phthalate	-0.17	-0.17	-0.17	-0.17
2-Chloronaphthalene	-0.17	-0.17	-0.17	-0.17
4-Chlorophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Chrysene	-0.17	-0.17	-0.17	-0.17
Dibenzo(a,h)anthracene	-0.17	-0.17	-0.17	-0.17
1,2-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,3-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,4-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
3,3'-Dichlorobenzidine	-0.34	-0.34	-0.34	-0.34
Diethyl phthalate	-0.17	-0.17	-0.17	-0.17
Dimethyl phthalate	-0.17	-0.17	-0.17	-0.17
Di-n-butyl phthalate	-0.17	-0.17	-0.17	-0.17
2,4-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
2,6-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
Di-n-octyl phthalate	-0.17	-0.17	-0.17	-0.17
1,2-Diphenylhydrazine	---	---	---	---
Fluoranthene	-0.17	-0.17	-0.17	-0.17
Fluorene	-0.17	-0.17	-0.17	-0.17
Hexachlorobenzene	-0.17	-0.17	-0.17	-0.17
Hexachlorobutadiene	-0.17	-0.17	-0.17	-0.17
Hexachlorocyclopentadiene	-0.17	-0.17	-0.17	-0.17
Hexachloroethane	-0.17	-0.17	-0.17	-0.17
Indeno(1,2,3-cd) pyrene	-0.17	-0.17	-0.17	-0.17
Isophorone	-0.17	-0.17	-0.17	-0.17
Naphthalene	-0.17	-0.17	-0.17	-0.17
Nitrobenzene	-0.17	-0.17	-0.17	-0.17
N-Nitrosodimethylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodi-n-propylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodiphenylamine	-0.17	-0.17	-0.17	-0.17
Phenanthrene	-0.17	-0.17	-0.17	-0.17
Pyrene	-0.17	-0.17	-0.17	-0.17
1,2,4-Trichlorobenzene	-0.17	-0.17	-0.17	-0.17
Method	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI
Date Sampled	08/23/88	08/23/88	08/23/88	08/23/88

ATI = Analytical Technologies, Inc.

(-) = Less than; numerical value is the Limit of Detection for that compound

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GROUNDWATER RESOURCES CONSULTANTS, INC.

TABLE E-6 (continued)

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM ESADA CHEMICAL STORAGE YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER ESADA-3 (1.0'-1.5')	SAMPLE IDENTIFIER ESADA-3 (3.5'-4.0')
Acenaphthene	-0.17	-0.17
Acenaphthylene	-0.17	-0.17
Anthracene	-0.17	-0.17
Benzidine	-1.7	-1.7
Benzo(a)anthracene	-0.17	-0.17
Benzo(a)pyrene	-0.17	-0.17
3,4-Benzofluoranthene	-0.17	-0.17
Benzo(ghi)perylene	-0.17	-0.17
Benzo(k)fluoranthene	-0.17	-0.17
Bis(2-chloroethyoxy) methane	-0.17	-0.17
Bis(2-chloroethyl) ether	-0.17	-0.17
Bis(2-chloroisopropyl) ether	-0.17	-0.17
Bis(2-ethylhexyl) phthalate	-0.17	-0.17
4-Bromophenyl phenyl ether	-0.17	-0.17
Butyl benzyl phthalate	-0.17	-0.17
2-Chloronaphthalene	-0.17	-0.17
4-Chlorophenyl phenyl ether	-0.17	-0.17
Chrysene	-0.17	-0.17
Dibenzo(a,h)anthracene	-0.17	-0.17
1,2-Dichlorobenzene	-0.17	-0.17
1,3-Dichlorobenzene	-0.17	-0.17
1,4-Dichlorobenzene	-0.17	-0.17
3,3'-Dichlorobenzidine	-0.34	-0.34
Diethyl phthalate	-0.17	-0.17
Dimethyl phthalate	-0.17	-0.17
Di-n-butyl phthalate	-0.17	-0.17
2,4-Dinitrotoluene	-0.17	-0.17
2,6-Dinitrotoluene	-0.17	-0.17
Di-n-octyl phthalate	-0.17	-0.17
1,2-Diphenylhydrazine	---	---
Fluoranthene	-0.17	-0.17
Fluorene	-0.17	-0.17
Hexachlorobenzene	-0.17	-0.17
Hexachlorobutadiene	-0.17	-0.17
Hexachlorocyclopentadiene	-0.17	-0.17
Hexachloroethane	-0.17	-0.17
Indeno(1,2,3-cd) pyrene	-0.17	-0.17
Isophorone	-0.17	-0.17
Naphthalene	-0.17	-0.17
Nitrobenzene	-0.17	-0.17
N-Nitrosodimethylamine	-0.17	-0.17
N-Nitrosodi-n-propylamine	-0.17	-0.17
N-Nitrosodiphenylamine	-0.17	-0.17
Phenanthrene	-0.17	-0.17
Pyrene	-0.17	-0.17
1,2,4-Trichlorobenzene	-0.17	-0.17
Method	8270	8270
Laboratory	ATI	ATI
Date Sampled	08/24/88	08/24/88

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value is the Limit of Detection for that compound

HDMSe00029175

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TABLE E-7

RESULTS OF ANALYSES FOR EPA PRIORITY BASE/NEUTRAL ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM B-100 AREA TRENCH

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER			
	B-100-1	B-100-2	B-100-3	B-100-4
Acenaphthene	-0.17	-0.17	-0.17	-0.17
Acenaphthylene	-0.17	-0.17	-0.17	-0.17
Anthracene	-0.17	-0.17	-0.17	-0.17
Benzidine	-1.7	-1.7	-1.7	-1.7
Benzo(a)anthracene	-0.17	-0.17	-0.17	-0.17
Benzo(a)pyrene	-0.17	-0.17	-0.17	-0.17
3,4-Benzofluoranthene	-0.17	-0.17	-0.17	-0.17
Benzo(ghi)perylene	-0.17	-0.17	-0.17	-0.17
Benzo(k)fluoranthene	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyoxy) methane	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroethyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-chloroisopropyl) ether	-0.17	-0.17	-0.17	-0.17
Bis(2-ethylhexyl) phthalate	-0.17	-0.17	-0.17	-0.17
4-Bromophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Butyl benzyl phthalate	-0.17	-0.17	-0.17	-0.17
2-Chloronaphthalene	-0.17	-0.17	-0.17	-0.17
4-Chlorophenyl phenyl ether	-0.17	-0.17	-0.17	-0.17
Chrysene	-0.17	-0.17	-0.17	-0.17
Dibenzo(a,h)anthracene	-0.17	-0.17	-0.17	-0.17
1,2-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,3-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
1,4-Dichlorobenzene	-0.17	-0.17	-0.17	-0.17
3,3'-Dichlorobenzidine	-0.34	-0.34	-0.34	-0.34
Diethyl phthalate	-0.17	-0.17	-0.17	-0.17
Dimethyl phthalate	-0.17	-0.17	-0.17	-0.17
Di-n-butyl phthalate	-0.17	-0.17	-0.17	-0.17
2,4-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
2,6-Dinitrotoluene	-0.17	-0.17	-0.17	-0.17
Di-n-octyl phthalate	-0.17	-0.17	-0.17	-0.17
1,2-Diphenylhydrazine	---	---	---	---
Fluoranthene	-0.17	-0.17	-0.17	-0.17
Fluorene	-0.17	-0.17	-0.17	-0.17
Hexachlorobenzene	-0.17	-0.17	-0.17	-0.17
Hexachlorobutadiene	-0.17	-0.17	-0.17	-0.17
Hexachlorocyclopentadiene	-0.17	-0.17	-0.17	-0.17
Hexachloroethane	-0.17	-0.17	-0.17	-0.17
Indeno(1,2,3-cd) pyrene	-0.17	-0.17	-0.17	-0.17
Isophorone	-0.17	-0.17	-0.17	-0.17
Naphthalene	-0.17	-0.17	-0.17	-0.17
Nitrobenzene	-0.17	-0.17	-0.17	-0.17
N-Nitrosodimethylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodi-n-propylamine	-0.17	-0.17	-0.17	-0.17
N-Nitrosodiphenylamine	-0.17	-0.17	-0.17	-0.17
Phenanthrene	-0.17	-0.17	-0.17	-0.17
Pyrene	-0.17	-0.17	-0.17	-0.17
1,2,4-Trichlorobenzene	-0.17	-0.17	-0.17	-0.17
Method	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88

ATI = Analytical Technologies, Inc.
(-) = Less than; numerical value is the Limit of Detection for that compound

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APPENDIX F

RESULTS OF LABORATORY ANALYSES FOR ACID ORGANIC COMPOUNDS

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GROUNDWATER RESOURCES CONSULTANTS, INC.

APPENDIX F

RESULTS OF LABORATORY ANALYSES FOR ACID ORGANIC COMPOUNDS

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HDMSe00029178

TABLE F-1

RESULTS OF ANALYSES FOR EPA PRIORITY ACID ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM RMDF LEACHFIELD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER RMDF-1	RMDF-2	RMDF-3	RMDF-4	RMDF-5	RMDF-6
2-Chlorophenol	-30	-30	-30	-30	-30	-30
2,4-Dichlorophenol	-30	-30	-30	-30	-30	-30
2,4-Dimethylphenol	-30	-30	-30	-30	-30	-30
4,6-Dinitro-o-cresol	-200	-200	-200	-200	-200	-200
2,4-Dinitrophenol	-200	-200	-200	-200	-200	-200
2-Nitrophenol	-30	-30	-30	-30	-30	-30
4-Nitrophenol	-200	-200	-200	-200	-200	-200
p-Chloro-m-cresol	-30	-30	-30	-30	-30	-30
Pentachlorophenol	-200	-200	-200	-200	-200	-200
Phenol	-30	-30	-30	-30	-30	-30
2,4,6-Trichlorophenol	-30	-30	-30	-30	-30	-30
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88
Method	8270	8270	8270	8270	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California.
(-) = less than; numerical value is the Limit of Detection for that compound

HDMSe00029179

TABLE F-2

RESULTS OF ANALYSES FOR EPA PRIORITY ACID ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM OLD CONSERVATION YARD

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER					
	OLDCONS1	OLDCONS2	OLDCONS3	OLDCONS4	OLDCONS5	OLDCONS6
2-Chlorophenol	-300	-300	-3000	-30	-300	-30
2,4-Dichlorophenol	-300	-300	-3000	-30	-300	-30
2,4-Dimethylphenol	-300	-300	-3000	-30	-300	-30
4,6-Dinitro-o-cresol	-2000	-2000	-20000	-200	-2000	-200
2,4-Dinitrophenol	-2000	-2000	-20000	-200	-2000	-200
2-Nitrophenol	-300	-300	-3000	-30	-300	-30
4-Nitrophenol	-2000	-2000	-20000	-200	-2000	-200
p-Chloro-m-cresol	-300	-300	-3000	-30	-300	-30
Pentachlorophenol	-2000	-2000	-20000	-200	-2000	-200
Phenol	-300	-300	-3000	-30	-300	-30
2,4,6-Trichlorophenol	-300	-300	-3000	-30	-300	-30
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88
Method	8270	8270	8270	8270	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California.
(-) = less than; numerical value is the Limit of Detection for that compound

HDMSe00029180

TABLE F-3

RESULTS OF ANALYSES FOR EPA PRIORITY ACID ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM NEW CONSERVATION YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER NEWCONS-1 (1.5'-2.0')	NEWCONS-1 (3.5'-4.0')	NEWCONS-2 (1.0'-1.5')	NEWCONS-2 (3.5'-4.0')	NEWCONS-3 (1.0'-1.5')	NEWCONS-3 (3.3'-3.8')
2-Chlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4-Dichlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4-Dimethylphenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
4,6-Dinitro-o-cresol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
2,4-Dinitrophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
2-Nitrophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
4-Nitrophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
p-Chloro-m-cresol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
Pentachlorophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
Phenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4,6-Trichlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
Date Sampled	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88
Method	8270	8270	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = less than; numerical value is the Limit of Detection for that compound

HDMSe00029181

TABLE F-4

RESULTS OF ANALYSES FOR EPA PRIORITY ACID ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM B-133, SODIUM BURN PIT

ORGANIC COMPOUND (micrograms per kilogram)	SAMPLE IDENTIFIER B-133-1	B-133-2	B-133-3	B-133-4	B-133-5	B-133-6
2-Chlorophenol	-30	-30	-30	-30	-30	-30
2,4-Dichlorophenol	-30	-30	-30	-30	-30	-30
2,4-Dimethylphenol	-30	-30	-30	-30	-30	-30
4,6-Dinitro-o-cresol	-200	-200	-200	-200	-200	-200
2,4-Dinitrophenol	-200	-200	-200	-200	-200	-200
2-Nitrophenol	-30	-30	-30	-30	-30	-30
4-Nitrophenol	-200	-200	-200	-200	-200	-200
p-Chloro-m-cresol	-30	-30	-30	-30	-30	-30
Pentachlorophenol	-200	-200	-200	-200	-200	-200
Phenol	-30	-30	-30	-30	-30	-30
2,4,6-Trichlorophenol	-30	-30	-30	-30	-30	-30
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88	08/25/88
Method	8270	8270	8270	8270	8270	8270
Laboratory	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL	TMA/NORCAL

TMA/NORCAL = Thermoanalytical, Inc., Richmond, California.
(-) = less than; numerical value is the Limit of Detection for that compound

HDMSe00029182

TABLE F-5

RESULTS OF ANALYSES FOR EPA PRIORITY ACID ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM SOUTHEAST DRUM STORAGE YARD

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER					
	SEDRUM-1 (1.0'-1.5)'	SEDRUM-1 (3.5'-4.0')	SEDRUM-2 (1.0'-1.5')	SEDRUM-2 (3.5'-4.0')	SEDRUM-3 (2.0'-2.5')	SEDRUM-3 (3.5'-4.0')
2-Chlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4-Dichlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4-Dimethylphenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
4,6-Dinitro-o-cresol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
2,4-Dinitrophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
2-Nitrophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
4-Nitrophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
p-Chloro-m-cresol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
Pentachlorophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
Phenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4,6-Trichlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
Date Sampled	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88	08/24/88
Method	8270	8270	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = less than; numerical value is the Limit of Detection for that compound

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TABLE F-6

RESULTS OF ANALYSES FOR EPA PRIORITY ACID ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM ESADA CHEMICAL STORAGE AREA

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER					
	ESADA-1 (1.5'-2.0)'	ESADA-1 (4.0'-4.5')	ESADA-2 (1.0'-1.5')	ESADA-2 (4.5'-5.0')	ESADA-3 (1.0'-1.5')	ESADA-3 (3.5'-4.0')
2-Chlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4-Dichlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4-Dimethylphenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
4,6-Dinitro-o-cresol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
2,4-Dinitrophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
2-Nitrophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
4-Nitrophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
p-Chloro-m-cresol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
Pentachlorophenol	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
Phenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
2,4,6-Trichlorophenol	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
Date Sampled	08/23/88	08/23/88	08/23/88	08/23/88	08/24/88	08/24/88
Method	8270	8270	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = less than; numerical value is the Limit of Detection for that compound

HDMSe00029184

TABLE F-7

RESULTS OF ANALYSES FOR EPA PRIORITY ACID ORGANIC COMPOUNDS
IN SOIL SAMPLES COLLECTED FROM B-100 AREA TRENCH

ORGANIC COMPOUND (milligrams per kilogram)	SAMPLE IDENTIFIER B-100-1	B-100-2	B-100-3	B-100-4
2-Chlorophenol	-0.17	-0.17	-0.17	-0.17
2,4-Dichlorophenol	-0.17	-0.17	-0.17	-0.17
2,4-Dimethylphenol	-0.17	-0.17	-0.17	-0.17
4,6-Dinitro-o-cresol	-0.85	-0.85	-0.85	-0.85
2,4-Dinitrophenol	-0.85	-0.85	-0.85	-0.85
2-Nitrophenol	-0.17	-0.17	-0.17	-0.17
4-Nitrophenol	-0.85	-0.85	-0.85	-0.85
p-Chloro-m-cresol	-0.17	-0.17	-0.17	-0.17
Pentachlorophenol	-0.85	-0.85	-0.85	-0.85
Phenol	-0.17	-0.17	-0.17	-0.17
2,4,6-Trichlorophenol	-0.17	-0.17	-0.17	-0.17
Date Sampled	08/25/88	08/25/88	08/25/88	08/25/88
Method	8270	8270	8270	8270
Laboratory	ATI	ATI	ATI	ATI

ATI = Analytical Technologies, Inc.
(-) = less than; numerical value is the Limit of Detection for that compound

HDMSe00029185

APPENDIX G

RESULTS OF LABORATORY ANALYSES FOR pH, SODIUM, POTASSIUM, GROSS ALPHA AND GROSS BETA, AND HYDROCARBONS

HDMSe00029186

APPENDIX G

RESULTS OF LABORATORY ANALYSES FOR pH, SODIUM, POTASSIUM, GROSS ALPHA AND GROSS BETA, AND HYDROCARBONS

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G-1 RESULTS OF ANALYSES FOR pH, Na & K, GROSS ALPHA AND GROSS BETA, AND HYDROCARBONS IN SOIL SAMPLES COLLECTED FROM SUSPECTED SOURCE AREAS IN AREA IV

HDMSe00029187

TABLE G-1

RESULTS OF ANALYSES FOR pH, Na & K, GROSS ALPHA AND GROSS BETA,
AND HYDROCARBONS IN SOIL SAMPLES COLLECTED FROM SUSPECTED SOURCE AREAS IN AREA IV

SITE	SAMPLE IDENTIFICATION	DATE SAMPLED	pH (units)	Na (mg/kg)	K (mg/kg)	GROSS ALPHA (pCi/g)	GROSS BETA (pCi/g)	HYDROCARBONS (mg/kg)	LABORATORY
B-021/022	RMDF-1	08/25/88	7.0	78	3,500	29.0 ± 5.8	59.0 ± 6.3	---	TMA/NORCAL
RMDF	RMDF-2	08/25/88	6.9	87	3,000	30.5 ± 6.1	64.2 ± 6.4	---	TMA/NORCAL
LEACHFIELD	RMDF-3	08/25/88	6.7	74	4,300	41.6 ± 6.5	4970 ± 176.9	---	TMA/NORCAL
	RMDF-4	08/25/88	6.3	76	3,400	15.0 ± 7.5	110.2 ± 8.1	---	TMA/NORCAL
	RMDF-5	08/25/88	6.6	84	4,300	23.0 ± 5.6	1943 ± 30	---	TMA/NORCAL
	RMDF-6	08/25/88	6.4	73	4,100	19.7 ± 11.1	182 ± 10.2	---	TMA/NORCAL
METHOD			9045	7770	7610	900.0	900.0	8015	

TMA/Norcal = Thermoanalytical, Inc., Richmond, California
(mg/kg) = Milligrams per kilogram
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029188

TABLE G-1 (continued)

RESULTS OF ANALYSES FOR pH, Na & K, GROSS ALPHA AND GROSS BETA,
AND HYDROCARBONS IN SOIL SAMPLES COLLECTED FROM SUSPECTED SOURCE AREAS IN AREA IV

SITE	SAMPLE IDENTIFICATION	DATE SAMPLED	pH (units)	Na (mg/kg)	K (mg/kg)	GROSS ALPHA (pCi/g)	GROSS BETA (pCi/g)	HYDROCARBONS (mg/kg)	LABORATORY
OLD CONSERVATION YARD	OLD CONS-1	08/25/88	7.5	150	2,800	15.3 ± 5.8	36.1 ± 5.2	64 (C_9-C_{22})	TMA/NORCAL
	OLD CONS-2	08/25/88	7.9	130	5,000	18.2 ± 8.0	29.0 ± 6.5	4 (C_9-C_{22})	TMA/NORCAL
	OLD CONS-3	08/25/88	5.4	130	3,400	7.3 ± 9.6	30.7 ± 6.9	4,000 (C_{22}+)	TMA/NORCAL
	OLD CONS-4	08/25/88	7.5	150	3,400	29.6 ± 6.3	37.6 ± 7.2	2 (C_9-C_{22})	TMA/NORCAL
	OLD CONS-5	08/25/88	8.1	250	3,700	11.0 ± 5.0	22.5 ± 6.4	0.3 (C_9-C_{22})	TMA/NORCAL
	OLD CONS-6	08/25/88	9.0	250	4,800	8.8 ± 6.3	45.0 ± 7.0	5 (C_{22}+)	TMA/NORCAL
METHOD			9045	7770	7610	900.0	900.0	8015	

TMA/Norcal = Thermoanalytical, Inc., Richmond, California
(mg/kg) = Milligrams per kilogram
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029189

TABLE G-1 (continued)

RESULTS OF ANALYSES FOR pH, Na & K, GROSS ALPHA AND GROSS BETA,
AND HYDROCARBONS IN SOIL SAMPLES COLLECTED FROM SUSPECTED SOURCE AREAS IN AREA IV

SITE	SAMPLE IDENTIFICATION	DATE SAMPLED	pH (units)	Na (mg/kg)	K (mg/kg)	GROSS ALPHA (pCi/g)	GROSS BETA (pCi/g)	HYDROCARBONS (mg/kg)	LABORATORY
B-133 SODIUM BURN PIT	B-133-1	08/25/88	11.6	5,300	11,000	32.3 ± 6.5	51.6 ± 8.0	0.8 (C_9-C_{22})	TMA/NORCAL
	B-133-2	08/25/88	11.8	5,900	7,800	24.8 ± 11.4	46.2 ± 8.2	0.9 (C_9-C_{22})	TMA/NORCAL
	B-133-3	08/25/88	10.1	2,400	3,400	36.8 ± 8.5	38.6 ± 7.4	0.7 (C_9-C_{22})	TMA/NORCAL
	B-133-4	08/25/88	7.5	180	2,700	11.5 ± 6.4	40.0 ± 7.0	0.2 (C_9-C_{22})	TMA/NORCAL
	B-133-5	08/25/88	7.8	110	3,900	30.5 ± 6.0	38.6 ± 7.4	0.7 (C_9-C_{22})	TMA/NORCAL
	B-133-6	08/25/88	9.6	6,900	3,300	7.4 ± 5.8	48.7 ± 7.3	0.3 (C_9-C_{22})	TMA/NORCAL
METHOD			9045	7770	7610	900.0	900.0	8015	

TMA/Norcal = Thermoanalytical, Inc., Richmond, California
(mg/kg) = Milligrams per kilogram
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029190

TABLE G-1 (continued)

RESULTS OF ANALYSES FOR pH, Na & K, GROSS ALPHA AND GROSS BETA,
AND HYDROCARBONS IN SOIL SAMPLES COLLECTED FROM SUSPECTED SOURCE AREAS IN AREA IV

SITE	SAMPLE IDENTIFICATION	DATE SAMPLED	pH (units)	Na (mg/kg)	K (mg/kg)	GROSS ALPHA (---)	GROSS BETA (---)	HYDROCARBONS (mg/kg)	LABORATORY
SOUTHEAST	SE DRUM 1 1.0'-1.5'	08/24/88	6.74	---	---	---	---	-5	ATI
DRUM	SE DRUM 1 3.5'-4.0'	08/24/88	6.87	---	---	---	---	-5	ATI
STORAGE	SE DRUM 2 1.0'-1.5'	08/24/88	6.53	---	---	---	---	-5	ATI
	SE DRUM 2 3.5'-4.0'	08/24/88	6.82	---	---	---	---	-5	ATI
	SE DRUM 3 2.0'-2.5'	08/24/88	6.69	---	---	---	---	-5	ATI
	SE DRUM 3 3.5'-4.0'	08/24/88	6.90	---	---	---	---	-5	ATI
ESADA	ESADA 1 1.5'-2.0'	08/23/88	8.35	664	2,550	---	---	-5	ATI
	ESADA 1 4.0'-4.5'	08/23/88	8.37	645	1,670	---	---	-5	ATI
	ESADA 2 1.0'-1.5'	08/23/88	8.01	732	1,940	---	---	-5	ATI
	ESADA 2 4.5'-5.0'	08/23/88	8.23	452	1,750	---	---	-5	ATI
	ESADA 3 1.0'-1.5'	08/24/88	8.28	590	1,900	---	---	-5	ATI
	ESADA 3 3.5'-4.0'	08/24/88	8.13	629	1,750	---	---	-5	ATI
TRENCH IN	B-100-1	08/25/88	7.87	---	---	---	---	-5	ATI
B-100 AREA	B-100-2	08/25/88	8.21	---	---	---	---	-5	ATI
	B-100-3	08/25/88	7.95	---	---	---	---	-5	ATI
	B-100-4	08/25/88	7.57	---	---	---	---	-5	ATI
METHOD			9045	6010	6010			8015	

ATI = Analytical Technologies Inc., San Deigo, California
(mg/kg) = Milligrams per kilogram
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029191

TABLE G-1 (continued)

RESULTS OF ANALYSES FOR pH, Na & K, GROSS ALPHA AND GROSS BETA,
AND HYDROCARBONS IN SOIL SAMPLES COLLECTED FROM SUSPECTED SOURCE AREAS IN AREA IV

SITE	SAMPLE IDENTIFICATION	DATE SAMPLED	pH (units)	Na (mg/kg)	K (mg/kg)	GROSS ALPHA (---)	GROSS BETA (---)	HYDROCARBONS (mg/kg)	LABORATORY
NEW CONS-	NEW CONS 1 1.5'-2.0'	08/24/88	7.35	---	---	---	---	-5	ATI
ERVATION	NEW CONS 1 3.5'-4.0'	08/24/88	6.55	---	---	---	---	-5	ATI
YARD	NEW CONS 2 1.0'-1.5'	08/24/88	6.93	---	---	---	---	-5	ATI
	NEW CONS 2 3.5'-4.0'	08/24/88	6.81	---	---	---	---	-5	ATI
	NEW CONS 3 1.0'-1.5'	08/24/88	5.84	---	---	---	---	-5	ATI
	NEW CONS 3 3.3'-3.8'	08/24/88	6.34	---	---	---	---	-5	ATI

METHOD	9045	8015

ATI = Analytical Technologies Inc., San Deigo, California
(mg/kg) = Milligrams per kilogram
(-) = Less than; numerical value represents the Limit of Detection for that compound
(---) = Analysis not reported

HDMSe00029192

APPENDIX H

SHALLOW MONITOR WELL CONSTRUCTION METHODS AND WELL SCHEMATICS

HDMSe00029193

APPENDIX H

SHALLOW MONITOR WELL CONSTRUCTION METHODS AND WELL SCHEMATICS

CONTENTS

SHALLOW MONITOR WELL CONSTRUCTION METHODS AND WELL SCHEMATICS . . H-1

ILLUSTRATIONS

FIGURE

H-1 SCHEMATIC DIAGRAM OF SHALLOW ZONE MONITOR WELL OLDCON 1

H-2 SCHEMATIC DIAGRAM OF SHALLOW ZONE MONITOR WELL B-133

H-3 SCHEMATIC DIAGRAM OF SHALLOW ZONE MONITOR WELL SEDRUM 3

H-4 SCHEMATIC DIAGRAM OF SHALLOW ZONE MONITOR WELL ESADA 1

HDMSe00029194

APPENDIX H

SHALLOW MONITOR WELL CONSTRUCTION METHODS AND WELL SCHEMATICS

Shallow monitor wells were completed at sites where the depth to bedrock was sufficient to allow the completion of a well. The shallow wells were constructed to assess the presence and character of groundwater potentially occurring along the interface between the alluvium/fill and the underlying Chatsworth Formation sandstone. These wells were all dry at the time of construction, and remained dry through October 1988.

To construct shallow monitor wells, four-inch PVC casing was installed in soil borings or sampling trenches. PVC casing was installed in one trench at both the Old Conservation Yard and B-133 Sodium Burn Facility. PVC casing was installed in one boring at both ESADA and the Southeast Drum Storage Yard. These wells are designated as OLDCON-1, B-133 WELL, ESADA-1 and SEDRUM-3 (**Figure 1**). The lower portion of the casing was perforated with 0.030-inch factory-cut slots. A gravel pack was installed in the annulus at each well from total depth to above the perforated interval (**Figures H-1 through H-4**). A two-foot thick bentonite seal was installed above the sand pack. In monitor wells ESADA-1 and SEDRUM-3 a two-foot thick bentonite seal was installed above the sand pack, and the remaining annulus was sealed

HDMSe00029195

with cement grout. Wells ESADA-1 and SEDRUM-3 were completed above grade with locking vault lids. A cement seal was installed in the annulus of the OLDCON-1 well and B-133 WELL.

HDMSe00029196

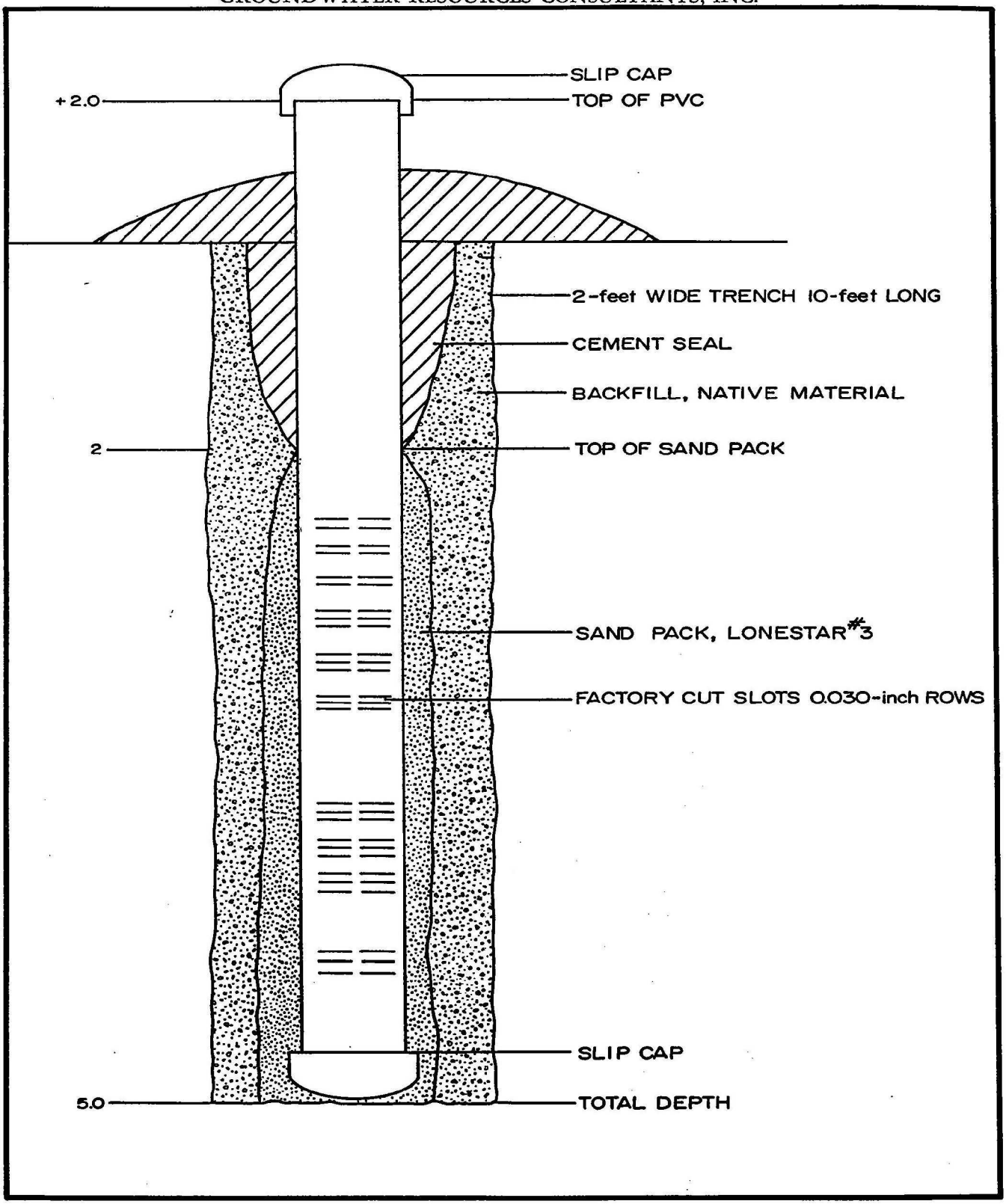


FIGURE H-1
SCHEMATIC DIAGRAM OF SHALLOW ZONE
MONITOR WELL OLD CON 1

HDMSe00029197

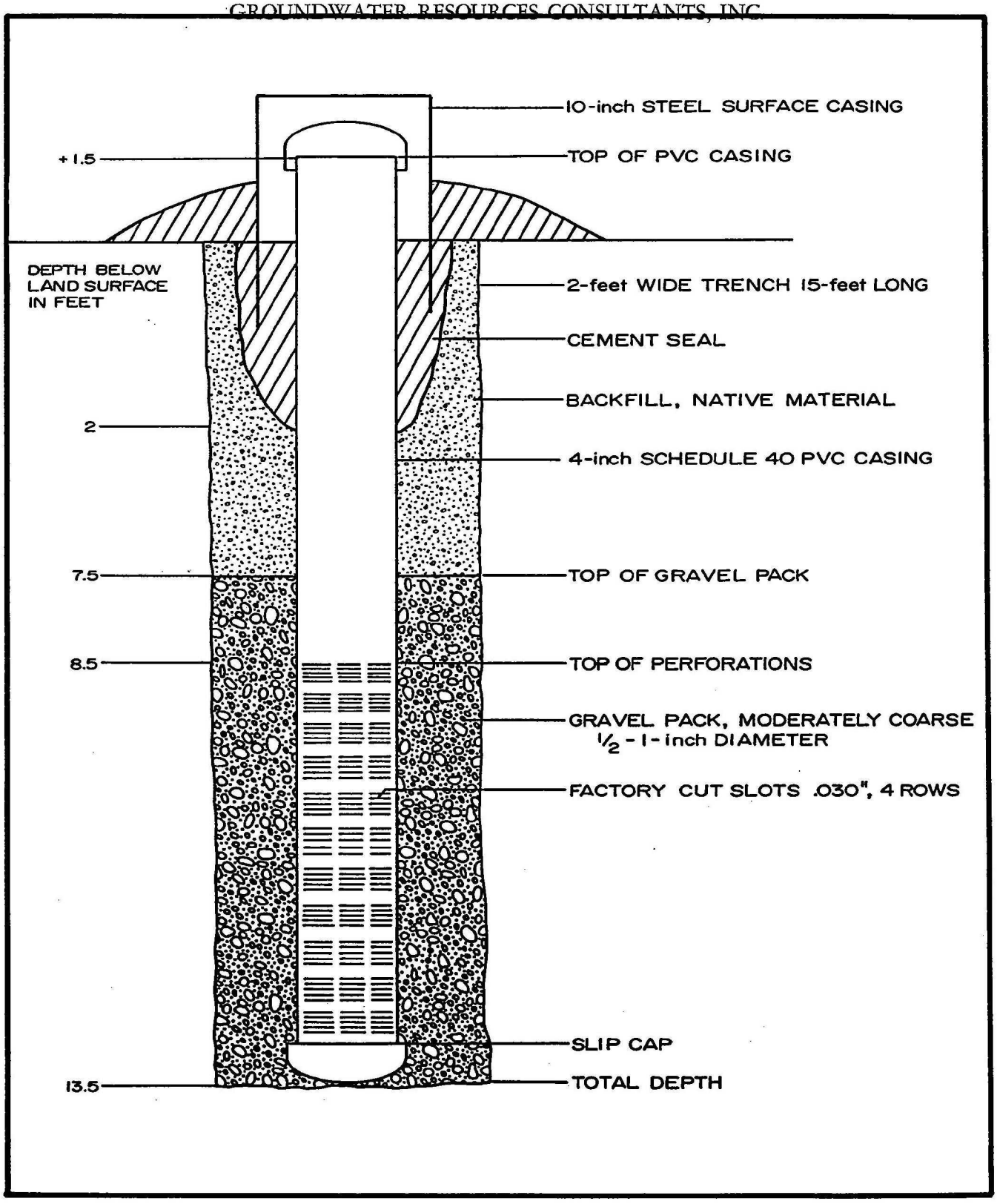


FIGURE H-2
SCHEMATIC DIAGRAM OF SHALLOW ZONE
MONITOR WELL B-133

HDMSe00029198

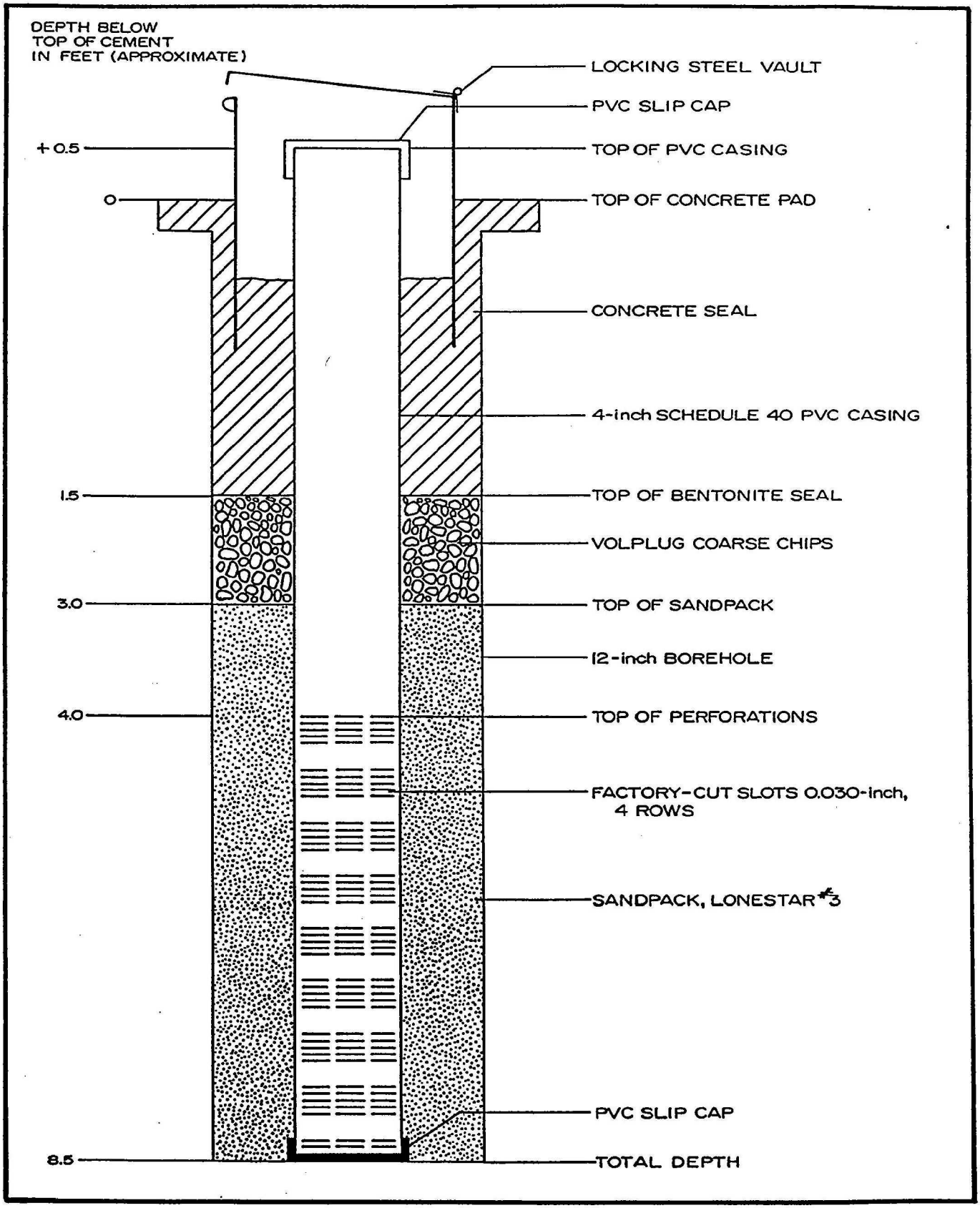


FIGURE H-3
SCHEMATIC DIAGRAM OF SHALLOW ZONE
MONITOR WELL SEDRUM 3

HDMSe00029199

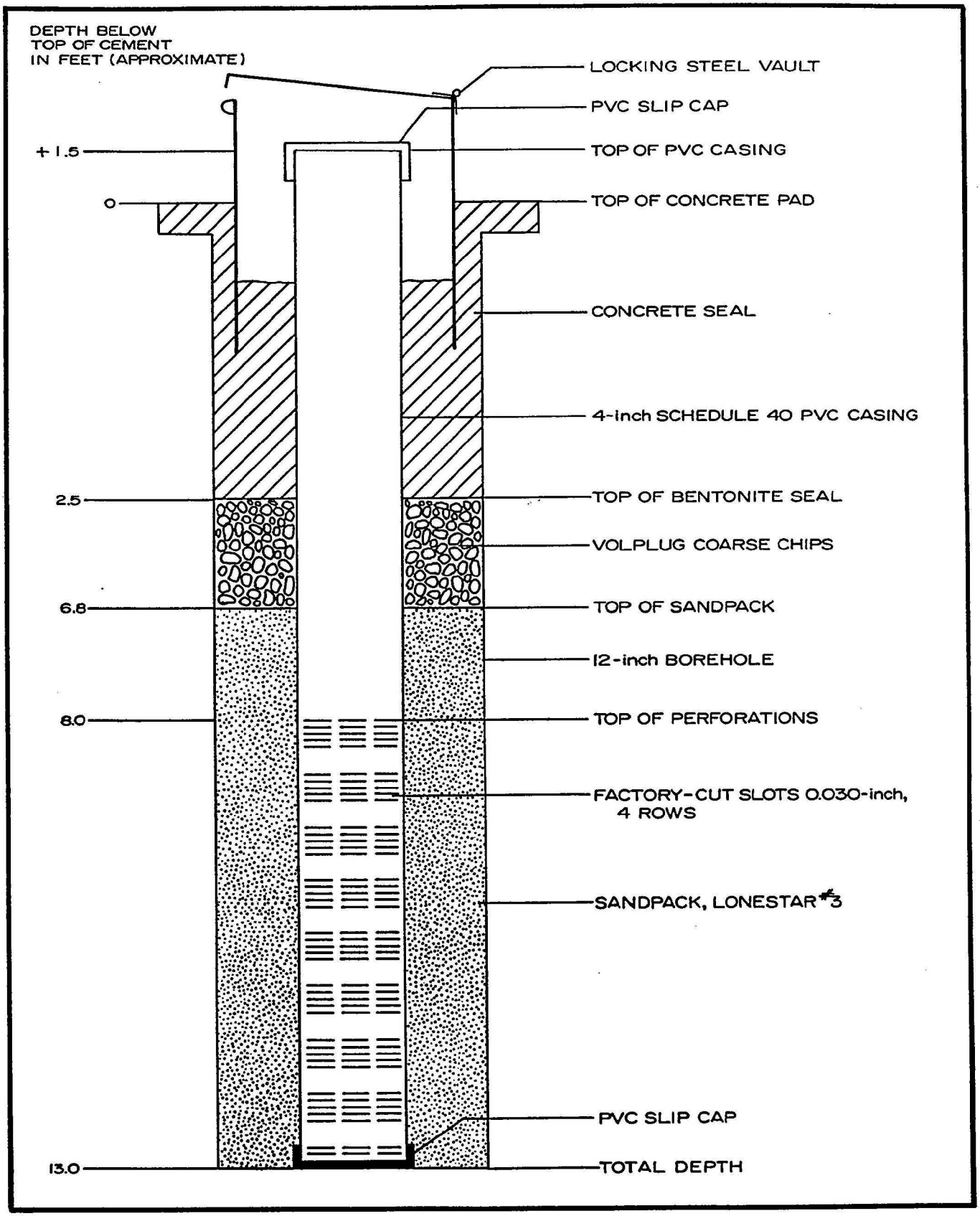


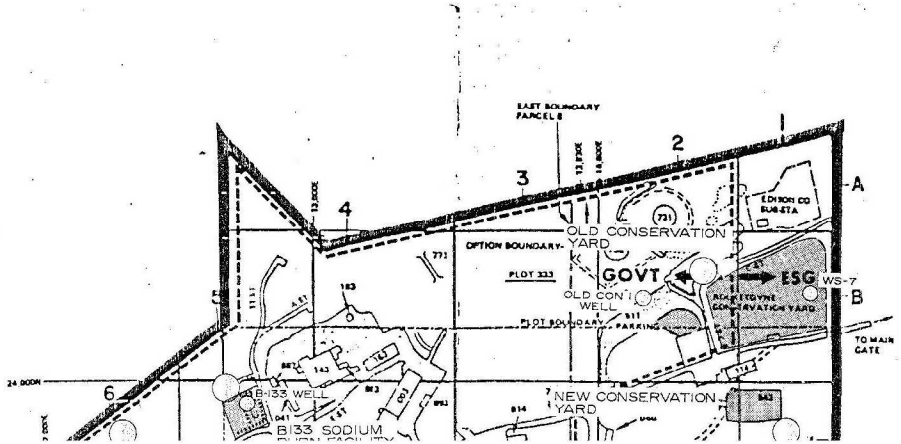
FIGURE H-4
SCHEMATIC DIAGRAM OF SHALLOW ZONE
MONITOR WELL ESADA 1

HDMSe00029200

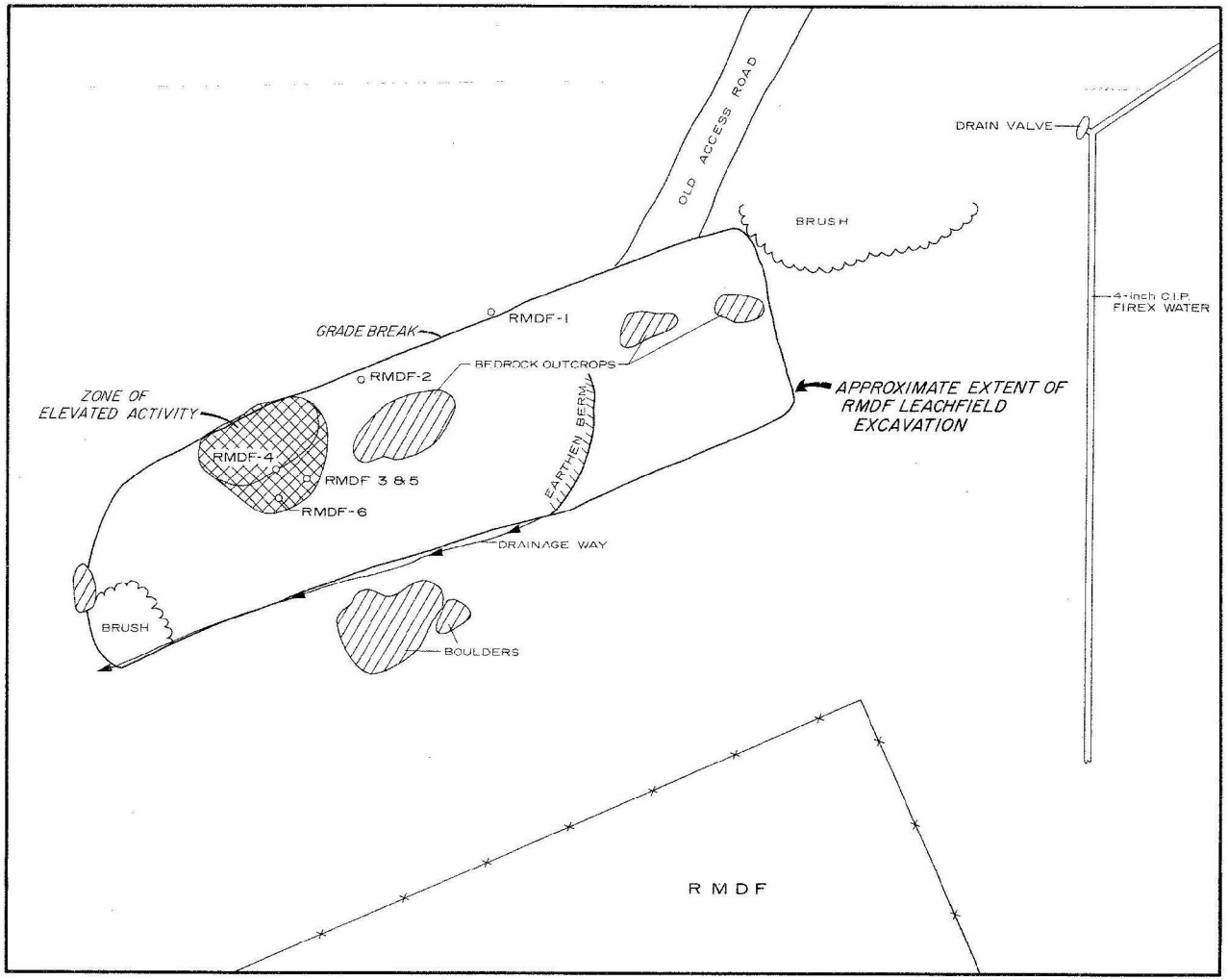
ENERGY SYSTEMS GROUP
SANTA SUSANA FIELD LABORATORY

MAY 1982

N



HDMSe00029201



E X P L A N A T I O N

^{0}RMDF-2 SOIL SAMPLING LOCATION

File No. 8640m-45

N

0 20 40

Scale in feet

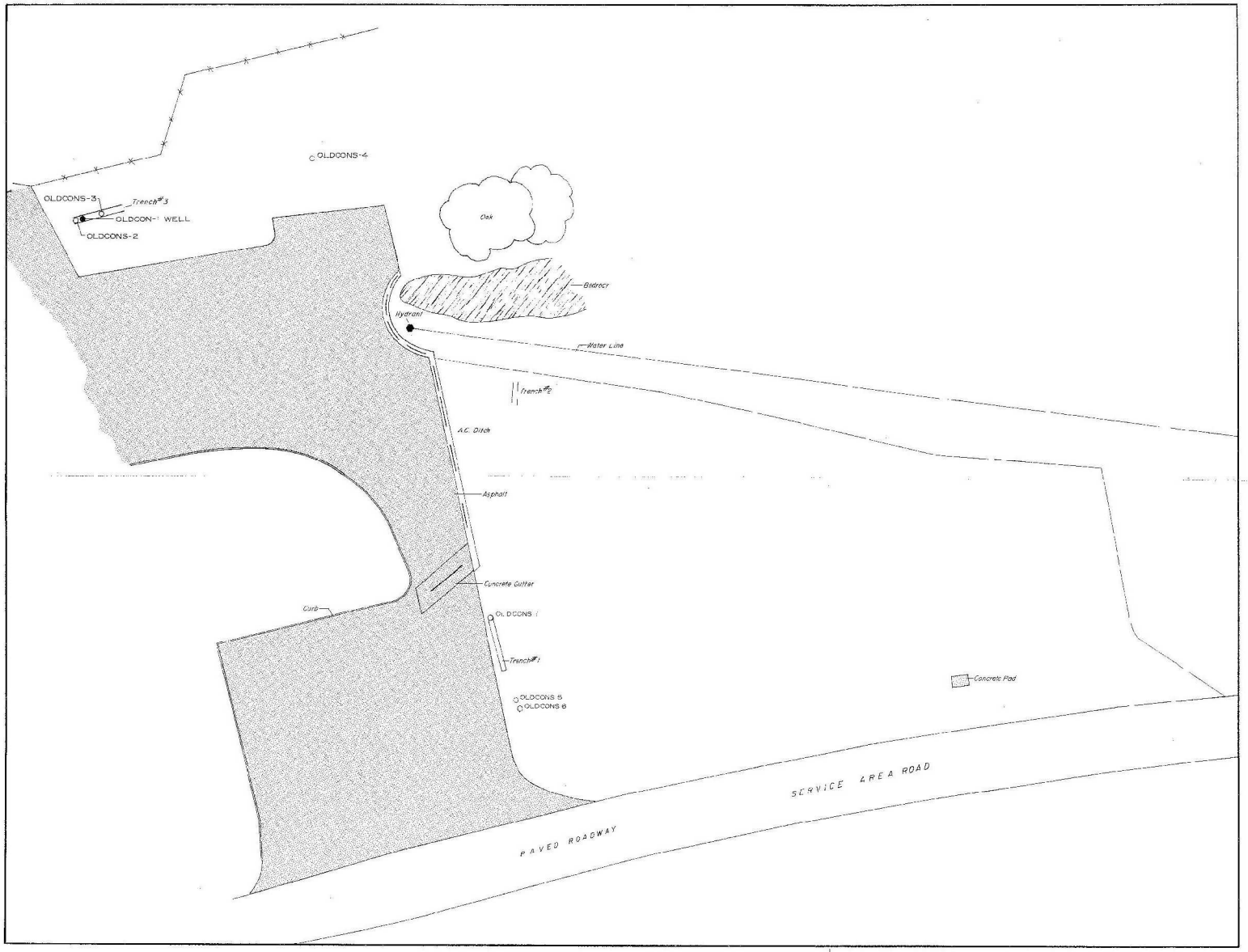
ROCKWELL INTERNATIONAL CORPORATION
SSFL AREA IV
RMDF LEACHFIELD

SITE MAP
RMDF LEACHFIELD

GROUNDWATER RESOURCES CONSULTANTS, INC.
CONSULTANTS IN HYDROGEOLOGY
TUCSON, ARIZONA

FIGURE 2

HDMSe00029202



EXPLANATION

OLDCONS-1 Soil Sampling Location

OLDCON-1 WELL Shallow Monitoring Location

File No. 864m-45

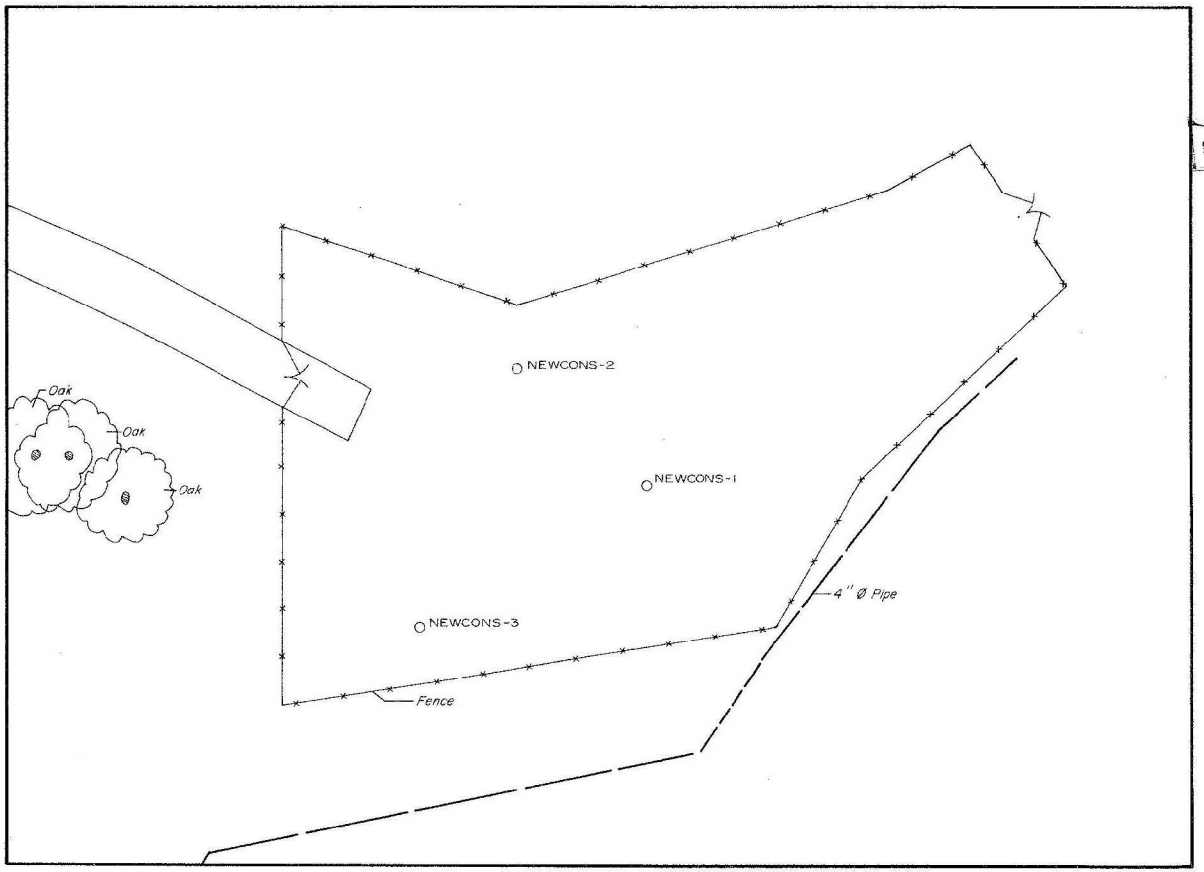
0 20 40
Scale in feet

ROCKWELL INTERNATIONAL CORPORATION
SSFL AREA IV
OLD CONSERVATION YARD

SITE MAP
OLD CONSERVATION YARD

GROUNDWATER RESOURCES CONSULTANTS, INC.
CONSULTANTS IN HYDROGEOLOGY
TUCSON, ARIZONA FIGURE 5

HDMSe00029203



EXPLANATION

NEWCONS 1 Soil Sampling Location

File No. 8640m-45

N

0 20 40

Scale in feet

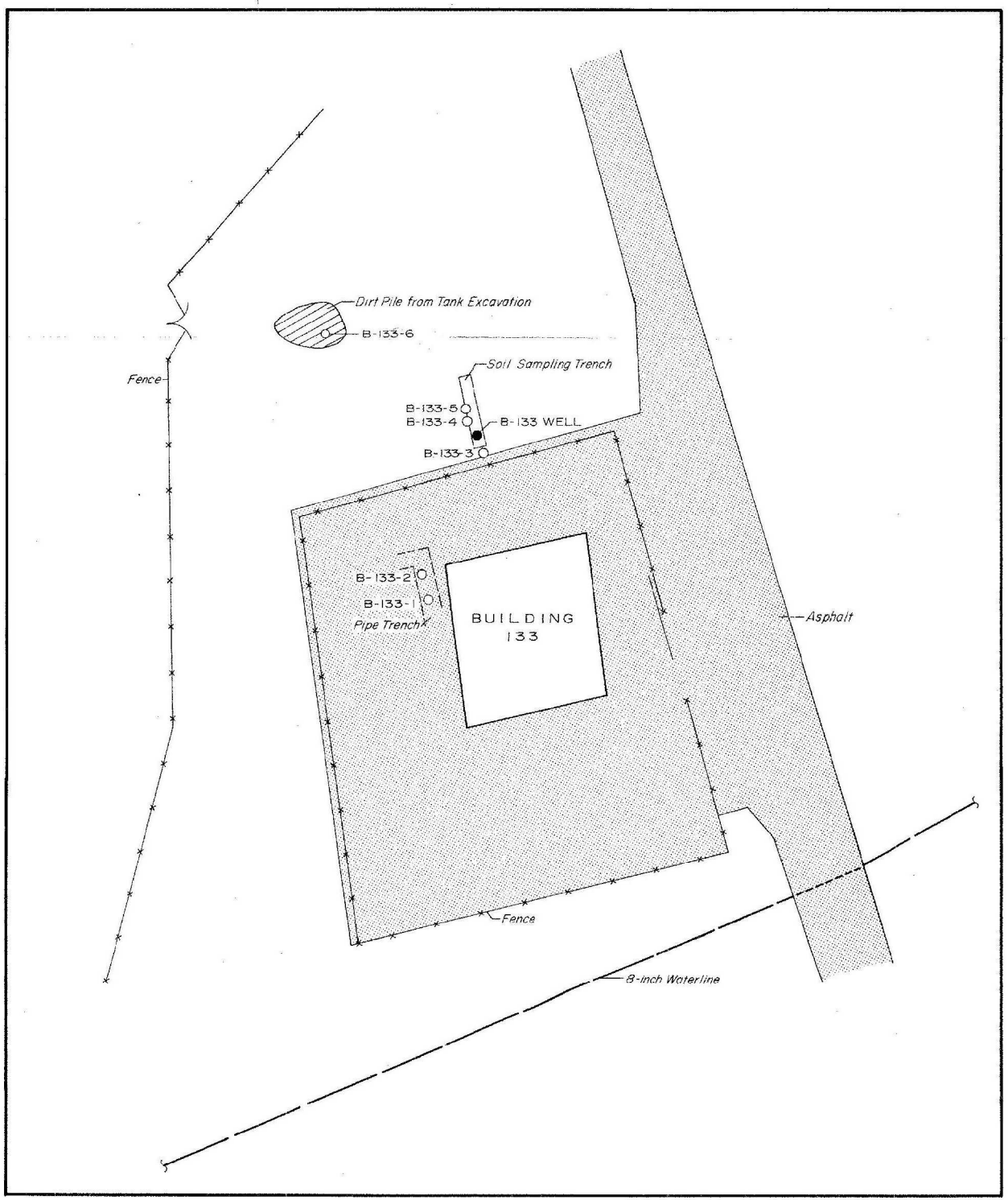
ROCKWELL INTERNATIONAL CORPORATION
SSFL AREA IV
NEW CONSERVATION YARD

SITE MAP
NEW CONSERVATION YARD

GROUNDWATER RESOURCES CONSULTANTS, INC.
CONSULTANTS IN HYDROGEOLOGY
TUCSON, ARIZONA

FIGURE 4

HDMSe00029204

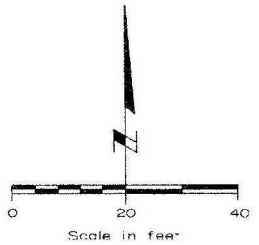


E X P L A N A T I O N

○ B-133-5 Soil Sampling Location

● B-133 WELL Shallow Monitoring Location

File No. 8640m-45



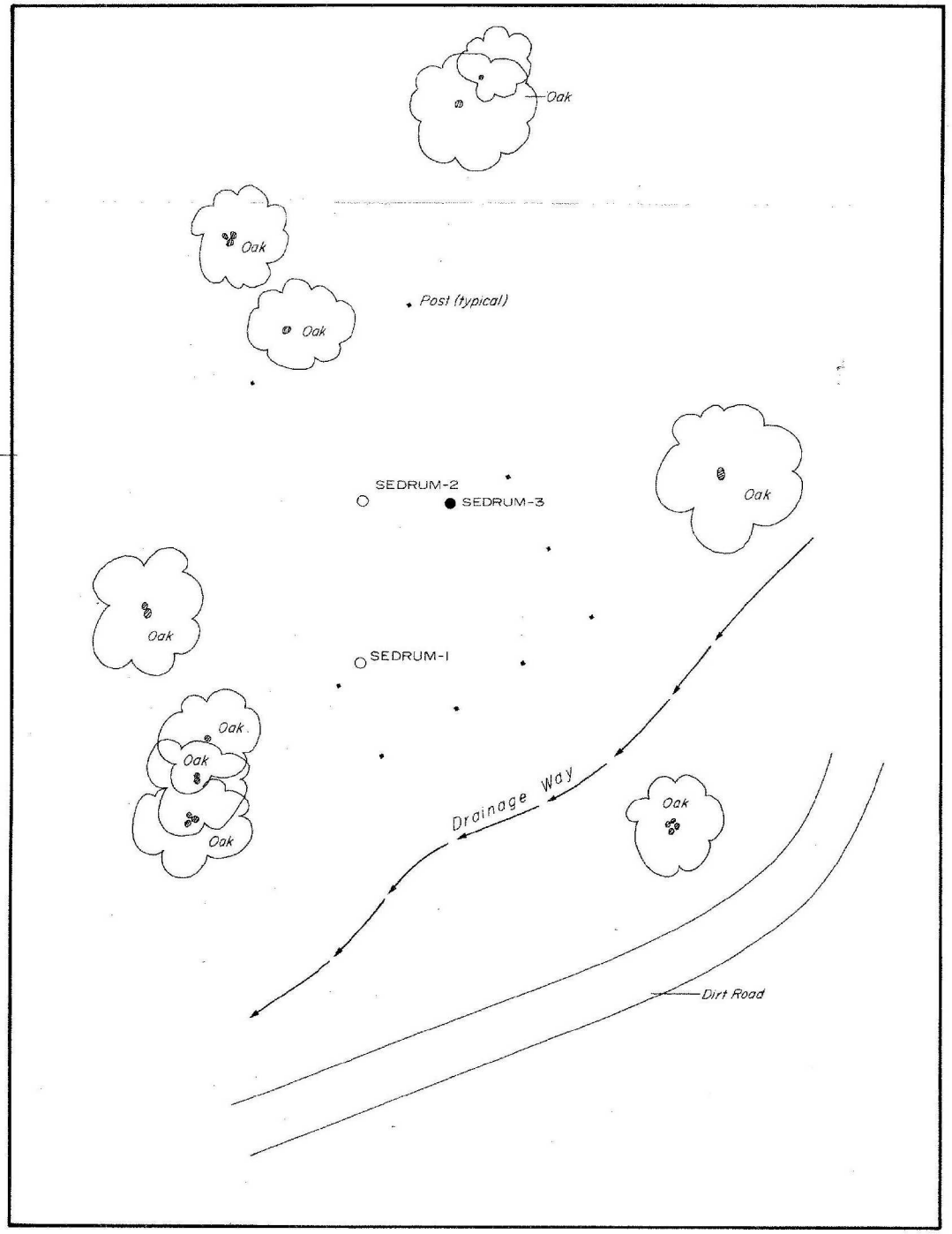
ROCKWELL INTERNATIONAL CORPORATION
SSFL AREA IV
BUILDING 133 – SODIUM BURN FACILITY

SITE MAP
B-133 SODIUM BURN FACILITY

GROUNDWATER RESOURCES CONSULTANTS, INC.
CONSULTANTS IN HYDROGEOLOGY
TUCSON, ARIZONA

FIGURE 5

HDMSe00029205



E X P L A N A T I O N

○ SEDRUM-2 Soil Sampling Location

● SEDRUM-3 Shallow Monitoring Location

File No. 8640m-45

0 20 40

Scale in feet

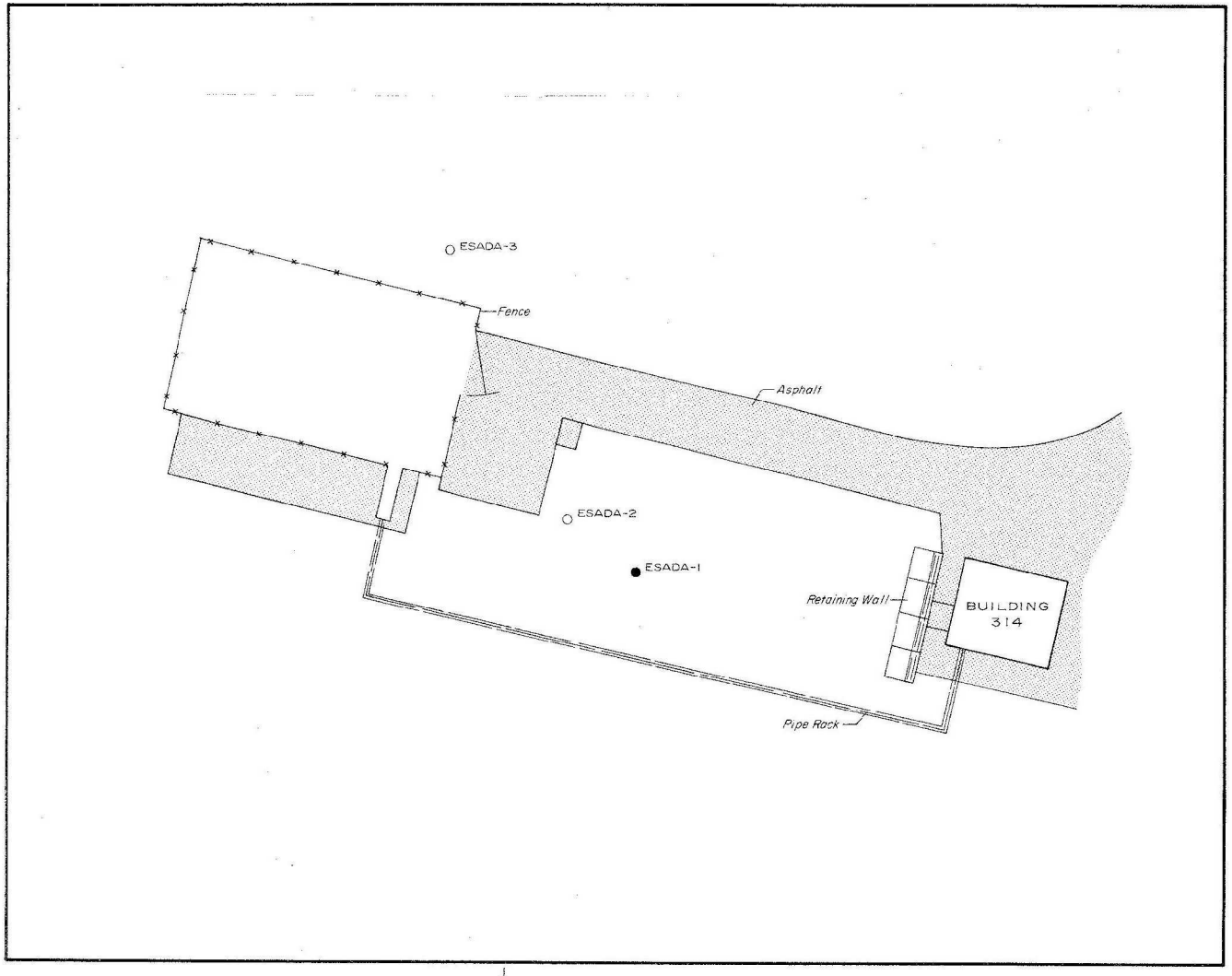
ROCKWELL INTERNATIONAL CORPORATION
SSFL AREA IV
SOUTHEAST DRUM STORAGE AREA

SITE MAP SOUTHEAST DRUM STORAGE AREA

GROUNDWATER RESOURCES CONSULTANTS, INC.
CONSULTANTS IN HYDROGEOLOGY
TUCSON, ARIZONA

FIGURE 6

HDMSe00029206



E X P L A N A T I O N

○ ESADA-3 Soil Sampling Location

● ESADA-1 Shallow Monitoring Location

File No. 8640m-45

N

0 20 40

Scale in feet

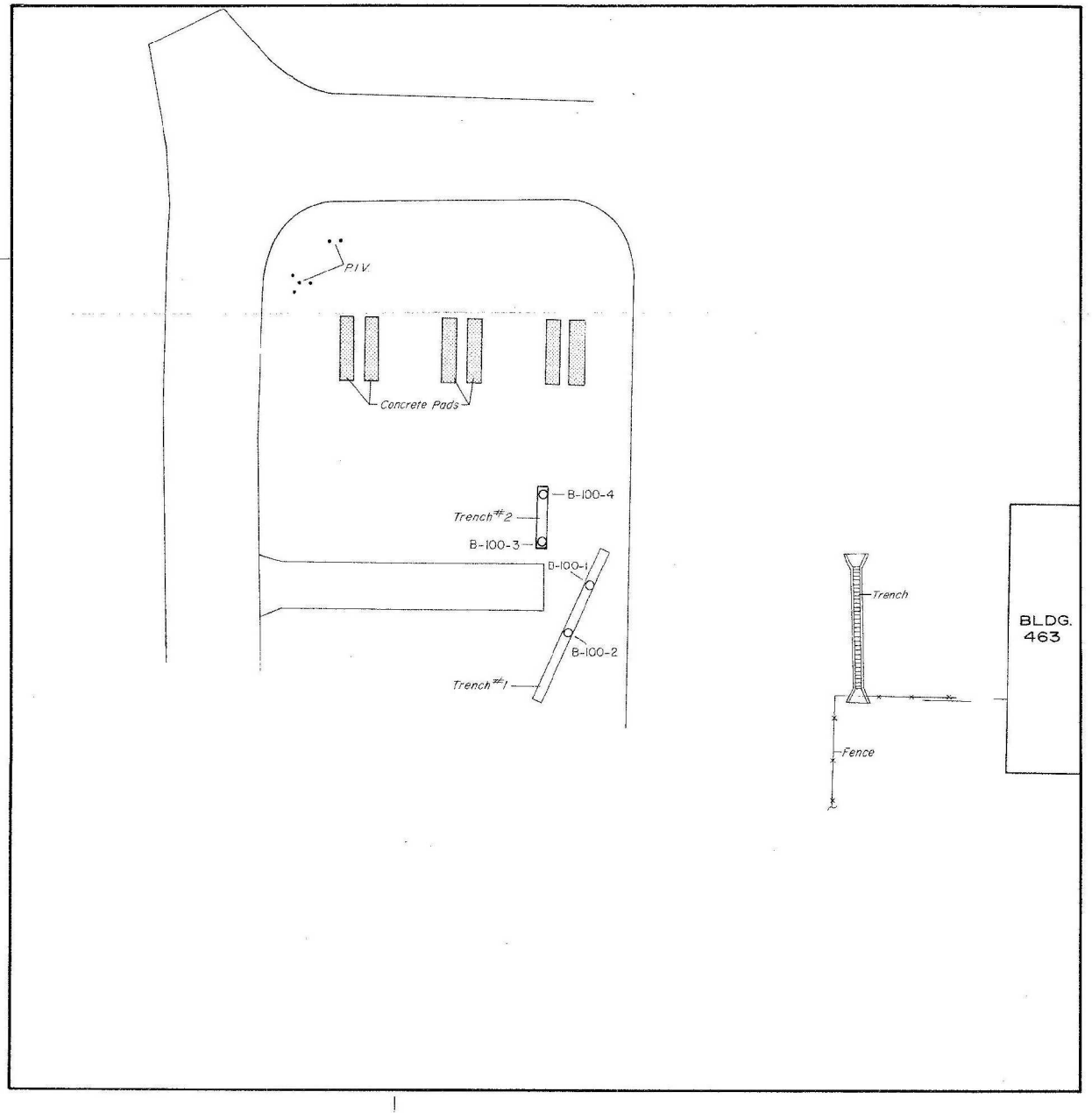
ROCKWELL INTERNATIONAL CORPORATION
SSFL AREA IV
ESADA CHEMICAL STORAGE YARD

SITE MAP
ESADA CHEMICAL
STORAGE YARD

GROUNDWATER RESOURCES CONSULTANTS, INC.
CONSULTANTS IN HYDROGEOLOGY
TUCSON, ARIZONA

FIGURE 7

HDMSe00029207



EXPLANATION

B-100-2 Soil Sampling Location

File No. 8640m-45

0 20 40

Scale in feet

ROCKWELL INTERNATIONAL CORPORATION
SSFL AREA IV
B-100 TRENCH

SITE MAP TRENCH IN THE B-100 AREA

GROUNDWATER RESOURCES CONSULTANTS, INC.
CONSULTANTS IN HYDROGEOLOGY
TUCSON, ARIZONA

FIGURE 8

HDMSe00029208